

SAORSTÁT EIREANN.

GRAIN INQUIRY TRIBUNAL

REPORT

ON

PROPOSAL THAT MAIZE MEAL
AND MAIZE PRODUCTS FOR SALE
IN SAORSTÁT EIREANN SHOULD
CONTAIN A DEFINITE PROPOR-
TION OF HOME GROWN GRAIN

DUBLIN:

PUBLISHED BY THE STATIONERY OFFICE.

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ORDER of the President of the Executive Council

appointing a Tribunal to inquire into the desirability from the point of view of the national interest of requiring that maize meal and maize products for sale in Saorstát Eireann should be mixed with home grown cereals.

WHEREAS it has been resolved by both Houses of the Oireachtas

That it is expedient that a Tribunal be established for inquiring into a definite matter of urgent public importance, that is to say :—

(1) to ascertain and report whether, having due regard to the interests of—

(a) Producers of cereals in Saorstát Eireann; and

(b) Consumers of maize meal and maize products in Saorstát Eireann,

it would be in the national interest to enact that all maize meal and maize products before being offered for sale in Saorstát Eireann shall be mixed with some one or more of the following home grown cereals, namely, wheat, barley, oats, or rye, so that the resultant mixture shall contain a definite percentage of such cereals; and, if so, what that percentage should be;

(2) to consider and report upon the effect, if any, which such enactment would be likely to have upon tillage and the production of cereals in Saorstát Eireann;

(3) to consider and report upon the administrative machinery necessary to make such enactment operative.

NOW, I, Liam T. MacCosgair, President of the Executive Council, in pursuance of the aforesaid resolution hereby nominate and appoint

J. J. McElligott, Esq., Secretary, Department of Finance.

Professor J. B. Whelehan, Controller of Stationery Office.

Dr. J. H. Hinchcliff, Agricultural Director, Department of Agriculture,

to be a Tribunal to inquire into and report to me upon the following matter, that is to say,

(1) to ascertain and report whether, having due regard to the interests of—

(a) Producers of cereals in Saorstát Eireann; and

(b) Consumers of maize meal and maize products in Saorstát Eireann,

it would be in the national interest to enact that all maize meal and maize products before being offered for sale in Saorstát Eireann shall be mixed with some one or more of the following home grown cereals, namely, wheat, barley, oats, or rye, so that the resultant mixture shall contain a definite percentage of such cereals; and, if so, what that percentage should be;

(2) to consider and report upon the effect, if any, which such enactment would be likely to have upon tillage and the production of cereals in Saorstát Eireann;

(3) to consider and report upon the administrative machinery necessary to make such enactment operative.

AND I hereby appoint J. J. McElligott, Esq., to be Chairman of the aforesaid Tribunal.

AND I hereby declare that the Tribunals of Inquiry (Evidence) Act, 1921, shall apply to the aforesaid Tribunal.

Dated this 29th day of November, 1929.

L.S.

LIAM T. MacCOSGAIR,

President of the Executive Council.

TO THE PRESIDENT OF THE EXECUTIVE COUNCIL.

We have the honour to present our Report upon the matters committed to us for investigation under the Order which prefaces our Report.

PART I.

INTRODUCTION.

1. We were first appointed on the 25th October, 1929, as a Commission of Inquiry with the same terms of reference; but, after careful review of the position, we came to the conclusion that, in the circumstances which existed, it was desirable that we should be empowered to take evidence on oath. This conclusion was based upon the following, amongst other, reasons:—

- (i) such procedure should assist the Tribunal in arriving at the truth;
- (ii) some of the evidence as, for example, that relating to millers' costs, would probably have to be taken in camera, and it was desirable that evidence so taken and, therefore, not open to criticism on the part of other interested parties, should be taken on oath; and
- (iii) it appeared to us that many of those interested in the inquiry desired that evidence should be taken on oath.

Although we fully appreciated the trouble which would be involved at that stage in securing the passage of the necessary resolutions by both Houses of the Oireachtas, as required by the Tribunals of Inquiry (Evidence) Act, 1921, we nevertheless felt justified in submitting our recommendation to the Government that this course should be adopted.

2. The necessary resolutions were passed by the Oireachtas on the 28th November, 1929.

3. Meanwhile we took steps to have it brought to the knowledge of all who might be concerned that a tribunal had been appointed to inquire into and report upon the matters at issue. We caused advertisements and press notices to be inserted in the principal daily and weekly newspapers, and in the agricultural journals circulating in Saorstát Éireann, announcing our appointment and inviting all persons who might desire to give evidence before us to communicate with our Secretary.

4. We also held a preliminary and informal meeting on the 23rd November, 1929. At that meeting, by arrangement, the honorary secretary of the Irish Grain Growers' Association was present. He asked that he might be accorded certain privileges, namely:—(a) that of appearing at all public meetings of the Tribunal on behalf of the advocates of the proposals which had

given rise to the inquiry; (b) of opening the case in favour of the adoption of the proposals at the first formal sitting of the Tribunal; and (c) of examining witnesses in favour of the proposals, cross-examining witnesses appearing in opposition to the proposals, and finally of closing the case by a general submission, including a review of the evidence, at the conclusion of the public part of the inquiry.

5. We decided to grant these privileges generally subject to certain conditions, namely:—(i) that if anyone representing witnesses or interests opposed to the proposals should likewise ask to be allowed to review the evidence, that person should first address the Tribunal; and (ii) that the privilege of cross-examining witnesses would be exercised within reasonable limits; that it would be restricted to one representative on behalf of each group appearing before the Tribunal; and that questions would be at all times subject to disallowance by the Tribunal.

6. We held our first public sitting for the hearing of evidence on the 3rd December, 1929; and thereafter we held altogether 16 public and 2 sittings in camera for the same purpose.

During the course of our proceedings the following witnesses gave evidence before us:—

Representing the Irish Grain Growers' Association.

Mr. J. J. Bergin, Maybrook, Athy, Co. Kildare. Farmer. Hon. Secretary, Irish Grain Growers' Association.

Mr. Michael Doyle, Taguat, Co. Wexford. Farmer. Chairman, Wexford County Council.

Mr. George W. Henderson, Athy, Co. Kildare. Farmer. Member of Kildare County Council.

Mr. Daniel Kennedy, Abbeyleix, Laoighis. Farmer, etc. Member of Laoighis County Council.

Mr. E. J. Broughan, Ballybromil, Fenagh, Co. Carlow. Farmer. Member of Carlow County Council.

Mr. James Brophy, Whitehall, Co. Kilkenny. Farmer. Member of Kilkenny County Council.

Mr. B. W. Brazier, Shangarry, Co. Cork. Farmer. Chairman East Cork Farmers' Union, Member of Cork County Council.

Mr. J. W. Young, Stradbally, Laoighis. Farmer. Member of Laoighis County Council.

Mr. P. Darcy, Liskinlawn, Borrisokane, Co. Tipperary. Farmer. The Very Rev. P. Hipwell, P.P., Ballyadams, Laoighis.

Mr. James Haverty, Mountbellew, Co. Galway. Farmer. Member of Committee of Management of Mountbellew Co-operative Mills.

- M. A. W. Fletcher, Kilcummon, Offaly. Farmer.
- Mr. T. A. Fowler, Strabane, Co. Tyrone. Farmer and Auctioneer.
- Mr. Seán Gibbons, Ballylarkin, Freshford, Co. Kilkenny. Farmer.
Chairman, Kilkenny County Council.
- Mr. P. J. Quaide, V'rona, Esplanade, Limerick. Buyer for
Messrs. Matterson and Son, Bacon Curers.
- Mr. D. C. Maher, Ardmoyle, Cashel, Co. Tipperary. Farmer.
- Mr. "A." Miller.

Independent Witnesses.

In favour of the proposals of the Irish Grain Growers' Association.

- Mr. T. McCluskey, Cashel, Co. Tipperary. Creamery Manager
and Pig Buyer. Representing local Cow-Testing Association.
- Mr. D. O'Donnell, Manager, Lee Strand Co-operative Creamery,
Tralee, Co. Kerry (who appeared on his own behalf and not
as representing his society).
- The Very Rev. T. Maguire, P.P., Newbliss, Co. Monaghan.
- Mr. E. A. Hackett, Castletown Park, Ballycumber, Offaly.
Farmer.

Witnesses opposed to the proposals of the Irish Grain Growers' Association.

- Mr. P. Medill, Listowel, Co. Kerry. Secretary, Kerry Farmers'
Union and Co-operative Marketing Association.
- Mr. Thomas Leen, Kilquane, Rathanny, Tralee, Co. Kerry. Re-
presenting Co. Kerry Committee of Agriculture.
- Mr. John Dillon, Secretary County Committee of Agriculture,
Tralee. Representing Co. Kerry Committee of Agriculture.
- Mr. Florence Harty, Abbeydorney, Co. Kerry. Representing
Abbeydorney Cow-Testing Association.
- Mr. John A. Dockery, Ballymote, Co. Sligo. Farmer.
- Mr. James O'Boyle, Tonroe, Killala, Co. Mayo. Farmer.
- Mr. T. Lucy, Secretary, Callan Co-operative Agricultural and
Dairy Society, Callan, Co. Kilkenny. Representing the
Society.
- Mr. P. F. Baxter, St. Aiden's, Cavan. Farmer. Representing
Co. Cavan Committee of Agriculture.
- Mr. J. Beatty, A.R.C.Sc.I. Agricultural Instructor. Representing
Co. Cavan Committee of Agriculture.
- Mr. Edmund Brady, Laragh, Mountnugent, Co. Cavan, Farmer.
Representing Co. Cavan Committee of Agriculture.

Mr. Thomas Murphy, Kiltubrid, Three Mile House, Co. Monaghan. Farmer. Representing Co. Monaghan Farmers.

Mr. E. J. Cussen, Secretary Co. Cork Farmers' Union.

Mr. C. Corcoran, P.C., Inchigaggin, Carrigrohane, Co. Cork. Member Cork County Council. Representing Co. Cork Committee of Agriculture.

Mr. D. O'Connor, Copstown Abbey, Mallow, Co. Cork. Representing County Cork Committee of Agriculture.

Mr. P. Swan, Buncrana, Co. Donegal. Miller.

Expert Witnesses.

Senator O'Rourke, Miller, Inniskeen, Co. Monaghan.

Mr. A. Odlum, Miller, Portarlinton, Laoighis.

Mr. D. C. C. Mercier, Miller. Representing Cork Millers' Association and a number of Maize Millers in the Saorstát.

Mr. C. P. McCarthy, M. Comm. F.S.A.A. Representing Cork Millers' Association and a number of Maize Millers in the Saorstát.

Mr. E. J. Sheehy, B.Sc., F.R.C.Sc. I., Lecturer in Animal Nutrition, University College, Dublin.

Mr. M. Caffrey, A.R.C.Sc.I., Lecturer in Plant Breeding, University College, Dublin.

Mr. C. Brownlee, B.Sc., F.I.C., Department of Chief State Chemist.

Mr. J. Crowley, A.R.C.Sc.I., Agricultural Instructor, Co. Kildare.

Mr. T. Healy, A.R.C.Sc.I., Agricultural Instructor, Co. Clare.

Mr. D. A. Humphreys, A.R.C.Sc.I., Agricultural Instructor, Co. Kilkenny.

PART II—GENERAL.

7. At our first formal sitting for the hearing of evidence we felt obliged to decide certain questions arising out of our Terms of Reference. The term "maize meal" presented no difficulty, but the term "maize products" was open to some ambiguity inasmuch as it might be held to include all the products of that cereal, including what is commonly known as corn-flour—a maize product prepared for household purposes. We assumed, of course, that the proposals of the Irish Grain Growers' Association were never intended to embrace corn flour, but we were less clear as to their application to maize germ meal and to cracked or kibbled maize, in addition to ordinary straight run maize meal, granulated maize meal, and flaked maize.

8. The representative of the Irish Grain Growers' Association assured us that that Association would be quite satisfied to have it accepted that the proposals did refer to cracked or kibbled maize but not to maize germ meal; and that "cereals" should be taken to mean the four principal cereals grown in Saorstát Éireann, namely, wheat, barley, oats, and rye, and that beans should be excluded from consideration. We have acted throughout on this understanding.

9. Before examining, in detail, the arguments for and against the proposals of the Irish Grain Growers' Association, we think it is well to say something with regard to the origin of the use of maize in this country.

10. In one of the first of the Journals (Vol. I—page 678) issued by the Department of Agriculture and Technical Instruction for Ireland, it is recorded that "maize is pre-eminently an American agricultural product. When the first settlers landed on the shores of the New World they found the natives eating bread of maize, as Columbus had previously found those of the West Indian Islands, and arising from the error by which the aborigines were called Indians, the name Indian corn was bestowed on their bread cereal. Maize is essentially a tropical or sub-tropical plant, and, although so extensively grown in America, its food properties were little appreciated in the outside world until the latter part of the nineteenth century. As recently as 1870-71, when the production of maize in the United States reached 1,000,000 bushels the exports represented less than one per cent. of the entire crop."

11. So far as this country is concerned, it would appear that maize was imported in small quantities as far back as 1801, but the purpose for which it was used cannot be gleaned from any available contemporary record. It may be concluded, however, from the relatively small quantities imported, that it was not used to any great extent for the feeding of live stock; and that it was not until the time of the famine that maize came into general use in this country.

12. Jonathan Pim, writing in 1848—"Condition and Prospects of Ireland", page 76, says:—"The measures taken by the Government in the winter of 1845 were not calculated to provide for so extensive a calamity as that which was experienced in the following year; it therefore seems unnecessary to refer to them further than to notice the extraordinary foresight which, by importing Indian corn from America, introduced a new kind of food so well suited to fill the void left by the loss of the potato crop."

13. In another part—page 124—of the same work he says:—"Potatoes were not merely the food of the people of Ireland. Stored up for winter food, they enabled the small farmer

or the cottier to feed cattle and pigs, to rear poultry, to trade in short as if he possessed so much capital.”

14. It is clear from the foregoing observations, written by an eye-witness of the conditions prevailing up to and around the famine period, and from the fact that imports of maize were continued at a high level long after the conditions which gave rise to its introduction to the country for use as human food had become ameliorated—that its use as a feeding stuff for live stock began during, or immediately after, the famine years. Seeing that maize has ever since held its ground as a feeding stuff in this country, and that it is imported in even larger quantities by other countries, it may be concluded that it has been found generally satisfactory and economic for this purpose.

15. Maize is grown for its grain in many parts of the world and notably in the United States of America (where it is the chief cereal crop), Mexico, Argentina, South Africa, Roumania, Yugoslavia, Italy, Hungary, Bulgaria, and Russia. Maize cannot be grown successfully in climates like ours, and consequently, if it is to be used at all, it must be imported. In recent years the imports of maize from North America to this country have greatly diminished, and supplies of that grain for Saorstát Eireann, imported either direct or via the United Kingdom or Belgium, now come from Argentina, Danubian ports and South Africa. Table I. of the Appendices shows the quantity and value of maize and maize meal imported into Saorstát Eireann during each of the years 1926 to 1930 inclusive. From this table it will be observed that the total net imports of maize and maize meal, and the values thereof, were as follows:—

Year.	Quantity cwt.	Value £
1926	7,330,917	2,860,215
1927	8,531,361	3,229,459
1928	8,525,886	3,927,374
1929	7,973,862	3,598,905
1930	8,435,614	2,583,978
Average	8,159,528	3,239,986

16. For the purpose of comparison we print, in Table II of the Appendices to this report, the acreage in Saorstát Eireann devoted to oats, barley, wheat and rye, with the estimated produce thereof, in each of the years 1926 to 1930, inclusive. As will be seen from that Table, the average annual home production of these cereals during the years 1926-30, inclusive, was:—

	Cwt.
Oats	13,060,780
Barley	2,623,680
Wheat	646,900
Rye	78,460
Total	16,409,820

17. In Table III. of the Appendices to this report are set out the Saorstát Eireann imports and exports of oats, barley, malt and wheat for each of the calendar years 1926 to 1930, inclusive. The exports in a calendar year generally relate to the produce of two years' crops, i.e., to that of the calendar year in question and also to that of the previous year. Accordingly we print, in Table IV. particulars of the exports and imports of oats and of barley for the twelve months beginning on the 1st of October in each of the years 1925, 1926, 1927, 1928 and 1929, for we consider that the returns of exports of these cereals so tabulated may be regarded for all practical purposes as applicable to the produce of the Saorstát Eireann crops for each of the years 1925 to 1929, respectively. We would draw particular attention to this Table, for in the evidence tendered to us the export figures for a calendar year were taken as relating to the produce of the crop of that year.

18. Table V. of the Appendices shows the manner of disposal of the 1926 home-grown cereals. Reference to this Table indicates that, of the entire produce of that year's oat crop, 69.2 per cent., or approximately seven-tenths, was used for the feeding of live stock on farms; 10.8 per cent., or approximately one-ninth, was used for seed; 13.0 per cent., or approximately one-eighth, was used partly for the feeding of town horses and livestock kept elsewhere than on farms, partly by oatmeal millers for the manufacture of oatmeal, and partly in farmers' households; and that 7 per cent., or approximately one-fourteenth, was exported.

19. The proposals for the compulsory admixture of a definite proportion of home grown cereals in all maize products offered for sale in Saorstát Eireann were first put forward in January, 1926, at a Conference of representatives of County Committees of Agriculture which had been called for the purpose of endeavouring to devise ways and means of improving the prices obtainable for home-grown cereals. These proposals were later adopted by the Irish Grain Growers' Association, a body composed mainly of farmers of the grain growing counties in the Midland and South-Eastern parts of Saorstát Eireann. So far as we have been able to ascertain, the Irish Grain Growers' Association is not a formally established body with a definite constitution setting forth its objects, and with rules governing its membership and its methods of procedure, but rather a loosely formed voluntary association of farmers having a common interest in securing higher prices for the grain they grow for sale, and, in particular, in finding an alternative outlet for the produce of their barley crops, the demand for which by maltsters, brewers and distillers has sensibly contracted in recent years, following the decline in the production of beer and spirits in this country.

PART III.—SUMMARY OF CONSIDERATIONS ADVANCED
BY THOSE WHO FAVOURED THE ADOPTION OF
THE ADMIXTURE PROPOSALS.

20. At the first public sitting of the Tribunal the representative of the Irish Grain Growers' Association outlined the proposals formulated by that body, in support of which he intended to submit evidence. These proposals were: that it was in the National interest and in that of the users of maize as well as of the producers of cereals in Saorstát Eireann, that all milled products of maize, except maize germ meal, intended for animal food, should be mixed with one or more of the home-grown cereals, oats, barley, wheat or rye; and that the mixture should consist of 85 per cent. of maize and 15 per cent. of home-grown grain.

21. He stated that those proposals were the outcome of the position created in the country by a series of years of bad prices for grain. During those years growers had experienced increasing difficulty in disposing of their surplus grain at a remunerative price; and in consequence the area under tillage had been gradually declining, with a corresponding decrease in employment, and a resultant fall in rural population. Concurrently, the imports of foreign grain had increased. He urged that it was in the National interest that those conditions should be altered, and claimed that the proposals formulated by the Irish Grain Growers' Association would have that effect. Those proposals were designed with the object of securing that the surplus grain produced in Saorstát Eireann should be consumed at home rather than be exported. He contended that the adoption of the proposals would secure an extension of tillage, and would thus provide increased employment and help to stem the tide of emigration.

22. All the witnesses who advocated the adoption of those proposals dwelt upon the unfavourable conditions of living which obtain in many parts of the country from the dearth of work for agricultural labourers. This they attributed to the decline in tillage that had gone on progressively for many years. They emphasised the ill-effects of this lack of employment; ill-effects which had manifested themselves on the one side in largely increased expenditure by other sections of the community for poor-law relief, and on the other by emigration. They all agreed that the decline in tillage was due to the uneconomic prices prevailing for grain. Those prices, they held, failed to afford adequate remuneration to the grower for the labour and other costs entailed in the production of grain, and, of course, offered him no inducement to continue in this branch of agricultural activity. At the same time, they pointed out that, situated as they were, many farmers would find it impracticable so to reorganise their system of farm economy as to enable them, instead of selling their home-grown grain, to feed it to livestock, and thus market it in the

form of livestock or livestock products. Many of those farmers had not the capital at their disposal to provide the livestock; on the contrary, a considerable number of them were obliged to thresh and sell their grain immediately after harvest in order to obtain cash to pay off indebtedness incurred during the working year; and, even then, some of them had lately found it impracticable to meet all their trade obligations and also pay their land purchase annuities.

23. Apart from the foregoing considerations, however, most of the witnesses considered that a great deal of the land now devoted to grain growing was quite unsuited for pasturage; it could not be laid down to grass permanently, or even for several years, and consequently the owners could not profitably adopt a system of agriculture which would necessitate the laying down a portion of that kind of land in grass for the grazing of stock in summer. They urged that the adoption of the proposals of the Irish Grain Growers' Association would obviate the necessity of doing so, as it would create a positive demand at home for a definite quantity of home-grown grain, and that this would have the effect of increasing the market value of the grain and so of securing to the farmer a remunerative return for his labour and outlay.

24. They based this view largely upon a comparison of the retail prices charged in their several districts for maize meal with the prices which the growers normally obtained for green grain as sold immediately after harvest. They maintained that the difference revealed should afford sufficient margin to enable millers, if the admixture proposals were in force, to pay an enhanced price for the grain after fully discharging all the other costs incidental to the proposals, viz., those which would be entailed in connection with the buying and transport of the green grain and its conditioning for storing, the storing of the dried grain, interest on capital invested in the stored grain, milling the grain, mixing and the charges for bagging and delivery to retailers, as well as the retail profit.

The witnesses differed, however, to a rather marked degree on the question of the prices which would afford adequate remuneration to the growers of the grain. Some maintained that barley could not be produced profitably at less than £1 per barrel*; one put the figure at 19s.; another said 18s.; while several others were prepared to accept 16s. One witness, indeed, went so far as to say that he would grow barley extensively if he were assured of the last-named price. With regard to oats one witness maintained that, in order to pay him, the grower would need to receive 16s. per barrel for white oats; others said 14s. per barrel; others 12s. 6d.; and others 10s. 6d. to 11s. 6d.

25. Assuming the correctness of the view that the existing difference between the price received by the farmer for home

* 1 barrel barley=16 stones. 1 barrel oats=14 stones.

grown green grain and the retail price charged by the retailer for maize meal afforded a margin sufficient to enable millers to carry out these proposals and at the same time to pay a higher price than the present market price for the home-grown grain, the witnesses concurred in the view that the effect of creating this new demand for such grain at remunerative prices would encourage production, and that this would not only stay the progressive decline in tillage, but would promote increased tillage. They pointed out that the increased acreage thus devoted to grain would lead to a more than corresponding increase in the amount of employment available on farms, seeing that it would entail a proportionate increase in the acreage devoted to roots in order to maintain the rotation, and that this in turn would necessitate the carrying of a larger number of live stock to consume the additional supply of straw and roots. They did not appear to have any clearly defined ideas as to the manner in which growers, who, on their showing, are not now in a position to purchase live stock to consume their surplus grain, would find this difficulty solved for them when it became a question of obtaining live stock to consume the additional straw and roots.

26. They represented, moreover, that the compulsory use of a definite proportion of home-grown cereals for the feeding of live stock would be in the feeder's interest, inasmuch as it would ensure the use of a better and more useful food and would thus bring about an improvement in the quality of the live stock products of the country, whether these took the form of beef, mutton, lamb, bacon, pork, butter, eggs, or poultry, with, of course, a corresponding increase in their market value; and, consequently, that should the proposals in practice, contrary to their anticipations, lead to an increase in the cost of the feeding stuff, the producers would find themselves adequately compensated for the additional outlay by the enhanced prices they could command for the products of their industry.

27. They also instanced certain incidental benefits which would follow upon the adoption of the proposals, as, for example, the maintenance in working of existing country grist mills, as well as the re-opening of others which are now closed, and the re-opening of which would be of advantage to farmers living in their vicinity. Therefore, they contended, the adoption of the proposals would bring about an all-round increase in production, and a relatively greater increase in employment, the benefits of which would extend far outside the immediate limits of the farming community, as other sections of the population could not fail to experience the beneficial effects of the increased purchasing power on the part of farmers which would flow from the circulation within the country of some £400,000 annually now spent abroad on the purchase of maize.

28. While they agreed that farmers in recent years had shown a tendency to retain an increasing proportion of home grown

cereals for the feeding of live stock, they nevertheless maintained that this was due rather to the low prices prevailing for grain than to any general realisation on the part of farmers of the merits of feeding home-grown cereals in preference to imported feeding stuffs, and consequently that some compulsory method was required to make feeders do what it was in their own, and in the national, interest that they should do. They instanced that the Government had had already to adopt such methods in connection with the improvement of the export trade in eggs and dairy produce, and also in connection with the elimination of scrub bulls and the destruction of noxious weeds, in all of which cases compulsion had to be employed.

29. They pointed out, too, that farmers who grew corn mainly for sale were under the necessity of purchasing store cattle and sheep to consume their surplus production of straw and roots; and consequently, they argued, any considerable extension of corn growing followed, as it necessarily would be, by increased production of straw and roots, would give rise to an increase in the demand for such animals and would thus be of benefit to the districts in which cattle and sheep are bred and reared.

30. They apprehended that their activities in this direction were not generally recognised, from the fact that the annual census of the various classes of live stock in each county of Saorstát Eireann, compiled and published by the Statistics Branch of the Department of Industry and Commerce, being, as it was, based upon statistics collected annually in the beginning of June, took cognisance only of animals in the respective counties at that time, and, therefore, while giving full credit to the grazing counties for cattle fed on grass (June being well within the grazing period) naturally contained no particulars of cattle that had been stall fed, or sheep that had been fattened, in the grain growing counties during the preceding winter and had meanwhile been sold off.

31. In his evidence, the representative of the Irish Grain Growers' Association submitted statistics relative to many European countries and contended that these proved that an agricultural policy, having as its object the extension of the area of land under the plough, was the only sound one for this country. In this connection he laid special emphasis on the statistics relative to Denmark.

PART IV—SUMMARY OF CONSIDERATIONS ADVANCED BY THOSE OPPOSED TO THE PROPOSALS.

32. The proposals were very strongly opposed by witnesses from different parts of the country. Among those witnesses were representatives of the County Cork Farmers' Union, of the County

Cork Committee of Agriculture, of the County Kerry Farmers' Union, of the County Kerry Committee of Agriculture, of the County Cavan Committee of Agriculture, of the County Monaghan Farmers, of the Callan (Co. Kilkenny) Co-operative Agricultural and Dairy Society, and individual farmers from Counties Sligo, and Mayo.

33. These witnesses founded their opposition to the proposals mainly on considerations of cost to the feeders of live stock. They were all convinced that the mixed meal could not be produced at the price of ordinary maize meal, and they opposed the infliction of any additional burden on feeders, who found it difficult enough at present to meet the competition of their rivals in other countries on their principal market.

34. Most of the witnesses claimed that farmers who fed live stock preferred to select the feeding stuffs they would use, and, when they found it economical to use home-grown grain, to fix the proportions in which they would feed it, and to do their own mixing. They objected to the adoption of any compulsory plan for the mixing of home-grown grain with maize whereby they would in effect have to sell their grain to millers and buy it back again at an enhanced price in the form of a mixture.

35. Many of the most strenuous opponents of the proposals protested that, although all kinds of home-grown grain were included within their scope, the real object of the proposals was to find an outlet for the surplus barley which was still being produced in large quantities despite the obvious shrinkage in the demand for it; that growers of oats, wheat or rye, as such, had made no demand for the adoption of any such scheme because they already fed the great bulk of the produce of these crops to their own live stock.

36. The witnesses who appeared on behalf of the farmers of Counties Monaghan and Cavan pointed out that while they grew cereal crops to provide feeding for their live stock, they actually carried more live stock than their land could support, although they tilled as large a proportion of it as their system of farm economy would permit, and fully as large as that devoted to tillage by farmers in other parts of the country who grew cereals mainly for sale; that indeed they were compelled by circumstances to till land which farmers in those other parts would scarcely regard as arable, and that nevertheless they were obliged to buy considerable quantities of maize meal to supplement their home produced feeding stuffs.

37. They instanced that the system of farming which they followed was directed towards the production of commodities for which there was virtually an unlimited demand, namely, butter, eggs, poultry, pork, bacon, and store cattle; that it was a system that called for the closest attention and entailed the most

laborious work, being, as one of them described it, a "seven days a week job"; and that while the prices obtained in every department of their activities were not always remunerative, yet they had the advantage of not having "all their eggs in one basket." At best they could not hope to derive any advantage from the adoption of the admixture proposals inasmuch as they could not increase their tillage area without so encroaching on that allotted to grass for summer grazing as to disorganise their whole farming system. On the other hand their main industry would be seriously jeopardised if, as a result of the adoption of the proposals, they were called upon to pay more for their raw material—maize products. They were unable to see how **any** scheme, based on those proposals, could fail to have that **effect**; for, apart from any increase in price that might result from the new demand that would be created for grain, the price in their areas would be certain to be affected by the restriction in competition which would follow the shutting off of imports of maize products from Northern Ireland as from other places outside Saorstát Eireann. They were satisfied that the scheme would be unworkable if free imports of maize meal not mixed with home-grown cereals were permitted. On the other hand it would be impracticable to formulate a scheme under which such maize meal could be imported under bond and mixed with home-grown cereals within the country without adding to the ultimate cost of the meal. They protested very strongly that, as the commodities they produced had to be sold in the open market against world competition, it was of cardinal importance to them that they should be as advantageously placed as were their competitors in the matter of access to cheap supplies of such of the raw materials of their industry as they could not themselves produce. Situated as they were, close to the Border, they at present enjoyed the benefit to be derived from the keen competition for their trade existing not only between the group of millers in the northern area of Saorstát Eireann, but also between those millers and large maize millers in Northern Ireland; and the effectiveness of that competition was to be gauged by the large quantities of maize meal sold annually in Saorstát Eireann by North of Ireland mills, amounting to almost an eighth of the entire quantity of maize meal consumed in the whole of the country. They also adverted to the fact that their trade relations with Northern Ireland were not one-sided, but reciprocal, as while they bought maize meal manufactured in Northern Ireland, their principal market for the sale of much of their own products was in Northern Ireland.

38. In support of their contention that the adoption of the proposals would increase the price of grain and, therefore, of the maize meal plus home-grown grain mixture, they argued that this must be the view of the promoters, because the latter contended that the adoption of the proposals would lead to increased tillage. It was, however, manifest that existing prices had failed to stay

the progressive decline in tillage to which the promoters had called attention and on which they founded their whole case. Was it not evident, therefore, that the only feature of the proposals that could be relied upon to induce a tendency in the opposite direction was the certainty that a new demand for so large a quantity of home-grown grain would have the effect of raising the price of that grain?

PART V—SUMMARY OF EVIDENCE GIVEN BY EXPERT WITNESSES.

39. The three Instructors in Agriculture, Messrs. Crowley, Humphrey and Healy, described the experiments they had carried out in their respective districts (in conjunction with similar work carried out by other Instructors in different parts of the country) in connection with a scheme formulated and directed by the Department of Agriculture with the object of determining the relative merits of maize meal and home-grown cereals as feeding stuffs for livestock. The results of those experiments which were subsequently collated and published by that Department showed that, for practical purposes, maize and all such cereals of sound quality were approximately equal in feeding value, and, subject to the general rule that mixed rations give the best results, that they might be replaced by one another as choice or necessity might determine. To this latter conclusion, however, there was one definite qualification, based upon the evidence so far ascertained, namely, that feeders of pigs would do well not to allow the proportion of oats fed to pigs to exceed one-third of the total meal ration.

40. The Instructors agreed that in recent years it had become more general with farmers to use their home-grown cereals as feeding stuffs.

41. Mr. M. Caffrey, A.R.C.Sc. I., Lecturer in Plant Breeding, University College, Dublin, in the course of his evidence stated that a very wide difference in feeding value existed between varieties of oats, and also within any one variety; and that in respect of the proportion of water content to dry matter, Irish-grown cereals compared unfavourably with those produced in the majority of the great grain growing countries. He had seen barley containing 23 per cent. moisture. He gave it as his opinion that the value of Irish-grown grain is less, weight for weight, than that of foreign grain of the same kind in proportion to the degree in which the dry content of the former falls below that of the latter. He also described the work carried out at the Albert Agricultural College in connection with the production of improved varieties of seeds, particularly with reference to a new variety of oats which is less liable to "lodge" on rich soils.

42. Mr. G. Brownlee, B.Sc., F.C.I., head of the section which deals with agricultural work in the Department of the Chief State

Chemist, was asked by us to give such evidence as might be at his disposal upon the question of the practicability, or otherwise, of enforcing a scheme such as that contemplated in these proposals by a system whereby samples of the mixed meals offered for sale would be taken and analysed with a view to ascertaining whether or not the meals which they represented contained the proper proportions of maize and home-grown cereals of sound quality. We called upon Mr. Brownlee as the only analyst known to us in the Saorstát who had had long and extensive experience in connection with the chemical and microscopical examination of feeding stuffs.

43. Mr. Brownlee testified that, in his opinion, it was not possible to tell, either by chemical or microscopical tests, the exact quantity of added grain mixed in the form of meal with maize meal in any given sample of such mixture. Furthermore, that even in cases where only one kind of grain was added it was not possible to get within any close approximation of the exact proportion; while the difficulty would be enhanced if the mixture were composed of several kinds of grain. One of the causes giving rise to this difficulty was that while the normal composition of each of the several kinds of grain showed certain fairly well marked differences, yet in ordinary practice the actual composition of different samples and varieties of the same grain was very often found to show wide divergencies from the normal. He instanced that considerable differences were to be found in different samples of the same grain as regards oil content, nitrogen content, and the proportion of husk to kernel. In maize, for example, the fibre content was about 1.9 per cent. whereas in oats it varied between 8 per cent. and 13 per cent. The husk in oats varied between 25 per cent. and 32 per cent. Mr. Brownlee furnished examples giving various blends with their respective analyses of fibre content, from which he showed that, judged by this standard, perfectly genuine blends might be condemned if contrasted with the normal figures relating to fibre content.

44. In answer to questions on the subject, Mr. Brownlee agreed that if it were administratively practicable to have samples taken in the first instance of the actual grist going into the mill at a particular operation, and next of the meal stated to have been produced from that grist, it would be always practicable to determine in his Department whether the composition of the one conformed with that of the other. He also agreed that it would be always practicable to determine empirically the nutritive value of any meal by the methods customarily followed in connection with the analysis of feeding stuffs.

45. Mr. E. J. Sheehy, B.Sc., F.R.C.Sc.I., Lecturer in Animal Nutrition, University College, Dublin, was invited by us, at the request of the representative of the Irish Grain Growers' Association, to give evidence upon such matters as he might think rele-

vant to our terms of reference, and in particular we asked him to deal with such questions as might arise from a comparison of the feeding values of maize and home-grown cereals.

46. He testified that, from the point of view of chemical composition, maize, barley, oats, wheat and rye, showed a general similarity which placed them in the same category as foodstuffs for farm animals; that they were predominantly starchy foods containing a moderate quantity of proteins or albuminoids; that they performed similar functions in the animal body, in which they replaced one another in definite proportions; and that as a group of foods they had certain merits and some limitations which were common to all five. He confirmed the statement made by another witness that maize varies very little in composition; while variations in composition (and consequently of nutritive value) are shown by different samples of home-grown oats and barley, that is to say, between (a) heavy and well filled grain, (b) medium quality, and (c) light, poorly filled grain. He agreed that a mixed meal composed of maize and a proportion of good quality, sound home-grown cereals would have practically the same nutritive value as pure maize meal. Questioned regarding the food value of flaked maize, he said that it was more digestible than maize meal; and added that as flaking reduces very considerably the oil content of the maize, it correspondingly diminished its tendency, when fed to pigs, to produce soft bacon. He agreed that as granulated maize meal does not contain the maize germ, in which the greater part of the oil is stored, it followed that the bacon derived from pigs fed on granulated maize meal should be firmer than that obtained from pigs fed on ordinary maize meal, and that the greater the amount of oil in the food, the less suitable that food was for the production of good bacon.

47. In the course of the inquiry the advocates of the admixture proposals contended that, under those proposals, users of maize meal or flaked maize would obtain a mixed meal of equivalent feeding value to maize meal at a price no higher than that which would ordinarily be charged for the latter commodity; on the other hand, while the opponents of the proposals strongly denied the validity of that contention, they all acknowledged that if it could be shown to be well-founded, they would be prepared to waive their other objections to the proposals.

48. This, therefore, became the crucial question for our consideration, considerably narrowing down the scope of our inquiry, and accordingly we invited millers, or the representatives of millers, who had intimated their willingness to give evidence before us, to deal if possible in their evidence with certain points, accurate information on which was required if any attempt were to be made to elucidate that question.

49. The following were the principal points with which we asked those witnesses to deal: (a) the normal moisture content of

oats and barley as usually offered for sale shortly after harvest; (b) the maximum moisture content at which such grain will keep, without being turned, when stored in bulk; (c) whether millers if they were obliged to mix maize meal manufactured by them with a definite proportion of home-grown grain, would obtain their entire supplies of the latter soon after harvest time, or in smaller quantities as they needed it during the year; and if the former, (i.) what charges would be involved in drying the grain down to the degree of moisture content at which it would keep; (ii.) what loss would be sustained through shrinkage; and (iii.) what other costs would be involved in the manufacture of the mixed meal as compared with the maize meal; (d) (i) what was the normal moisture content of maize; (ii.) whether it had to be kiln-dried before being ground; and (iii.) what proportion of dust or other impurities did it contain as imported; (e) what charges would be involved in making up maize meal intended for human consumption in packets containing two stones by weight, as had been suggested by the Irish Grain Growers' Association; (f) what possibilities would exist, if this scheme were in force, of badly conditioned or inferior grain, tailings, screenings, or oat husks, being used in the admixture.

50. Of the millers, or representatives of millers, to whom this questionnaire had been addressed, Mr. A. Odlum, of the firm of Messrs. Odlum, millers, Portarlinton, was the first to appear before us. Mr. Odlum stated that he had had long experience in connection with the growing and buying of grain, and also of the manufacture of meals, maize and oaten, flaked and straight run. He had regularly made tests of the moisture content of oats in connection with the oatmeal manufacturing end of his business as a miller, for which purpose he, like other oatmeal millers, purchased only first quality oats. He also dealt in barley. In his experience, the moisture content of home-grown oats varied between 18 and 20 per cent.; while barley sometimes exceeded the latter figure. He had been long accustomed to store grain for future use in his mills, and he believed that grain would keep safely in bulk if dried down to 13 per cent. moisture content, but he preferred 12 per cent. as a safer figure.

51. With regard to the time at which millers would purchase their supplies of home-grown grain for admixture purposes, Mr. Odlum was satisfied that they would find it necessary to do so immediately after harvest, unless the growers could be given cash advances against corn held in stacks. If bought soon after harvest, the grain would have to be kiln-dried. His firm used a patent Walworth kiln for the drying of oats intended for manufacture into oatmeal, and, with liberal provision for labour, depreciation and interest, he estimated that the cost of drying home-grown grain on such kiln would amount to 4s. 5d. per ton. If a flat head kiln were used the cost would be higher—about 7s. 6d.

per ton. He estimated that the cost of storage would amount to about $\frac{1}{2}$ d. per barrel per month.

52. He estimated that it cost 1s 10 $\frac{1}{2}$ d. for power to grind one ton of maize to pass through a 24-inch mesh, and that it would cost four times as much, or about 7s. 6d. per ton, to grind oats to the same degree of fineness. He considered that a barley-plus-maize grist could be fed directly to existing mills, but that oats, owing to the toughness of the husk, would have to be ground separately on what is called an impact grinder. Such a machine capable of grinding 3 $\frac{1}{2}$ cwt. of oats per hour would cost £150, and would require 25 to 30 h.p. to operate it. Oats ground on this machine could be fed from the hopper or bin on to a travelling band and thus mixed automatically with the separately ground maize meal. The installation of the travelling band with its operating machinery, and of the equipment for regulating and measuring the flow for mixing purposes, would call for additional expenditure over and above that estimated for the impact grinder.

53. Mr. Odlum stated that in his district farmers followed the practice, usual in other districts, of having their barley ground into meal and their oats merely crushed. He added that barley or oats could be flaked as cheaply as maize, but that the mixing of flaked oats or barley with flaked maize would cost from 6d. to 1s. per ton of the mixture.

54. With regard to the moisture content of maize, he stated that in his experience Plate maize, as usually delivered at the mills had an average moisture content of 12 per cent., although it might vary between 10 and 15 per cent. It, therefore, did not require to be kiln-dried. North American maize usually had a higher moisture content, but the quantity of North American maize imported was relatively unimportant. He had no doubt that maize meal for immediate consumption could safely contain more moisture than grain intended for storing in bulk. He stated that the impurities in maize as imported were of negligible importance and did not exceed 1 $\frac{1}{2}$ per cent.

55. He said that maize meal intended for human consumption if made up in bags containing two stones would cost 1s. 2d. per cwt. (or, say, £1 per ton) extra. If made up in bags containing 8 stones, the extra cost would be 5s. per ton.

56. In his opinion there would undoubtedly be a great temptation to use home-grown grain of inferior quality. Plate, (i.e., South American) maize was remarkably uniform in quality. On the other hand oats and barley varied in quality to a considerable extent. Only oats of the best quality were suitable for manufacture into oatmeal, and only those were at present offered to millers by farmers. Should the admixture proposals be adopted, however, he foresaw the danger of a market being created for grain of an inferior quality, seeing that such grain would lose its identity in the mixture. He also foresaw the graver danger that oat husks

and other offal rejected in the process of manufacturing oatmeal, for which it was becoming increasingly difficult to find an outlet and which were liable to accumulate on millers' hands, might be added to the mixture; and he feared that it would be found impracticable to guard against such malpractices. The testing of samples would evidently be ineffective and surprise inspections would be little better. On the whole he considered that consumers would have to rely upon the bona fides of the miller.

57. Mr. Odlum also indicated certain difficulties with which millers would be confronted if the proposals were adopted. In the first place they would have considerable difficulty in estimating their requirements 12 months ahead, having regard to the variable demand for meal. With regard to price, he saw no danger of a hold-up of supplies by farmers, but he did apprehend that from time to time other causes would bring about shortage of supplies and high prices. He thought that to guard against such contingencies the central authority concerned with the administration of the scheme should be empowered to ease the position when necessary, either by reducing the percentage of admixture or dispensing with it altogether for a time.

58. Mr. C. P. McCarthy, M.Comm., F.S.A.A., and Mr. D. C. C. Mercier, were nominated in the first instance by the Cork Farmers' Union to give evidence on the technical and other aspects of the scheme from a milling point of view, and a questionnaire similar to that sent by us to Mr. Odlum was also issued to them. When, however, these witnesses appeared before us to give evidence, they explained that while the Cork Farmers' Union had originated the suggestion that such evidence should be given, as "they wanted some facts with regard to the mixture," they were appointed as witnesses by a conference of the Maize Meal Millers of Saorstát Éireann, held at Mallow on the 5th November, 1929, and that that conference represented the great bulk of the meal trade of the country. In preparing the evidence which they tendered to us they were in no way biassed or affected by the known opposition of the Cork Farmers' Union to the scheme. They were given every facility by the millers to investigate the matters to which their evidence referred, and that evidence was submitted to and approved by a Committee appointed by the conference of millers already mentioned. The resolution of the conference appointing them was to the effect that they were to give evidence neither for nor against the proposals of the Irish Grain Growers' Association.

59. In giving their evidence these witnesses stated that the moisture content of home-grown grain varied between 18 and 21 per cent.; that to ensure safe keeping in bulk they would dry it down to 13 per cent. although they thought it might keep at 15.5 per cent. if spread on a loft. The average moisture content of Plate maize of the 1929 crop as imported was 13.5 per cent. African maize was drier.

60. With regard to comparative costs of manufacture, the witnesses stated that it would be quite impossible to prepare such costs unless one turned over for a long period a mill which had previously been used for grinding maize only. The cost was made up of four ingredients, namely, raw material, labour, direct factory cost and distribution cost. The cost of the raw material in this case was, they assumed, known to us, and they did not enter into it. On the question of general operating costs, they said it would be impracticable to segregate a mill and to apportion to any one machine grinding maize, or grinding maize in admixture with cereals, its exact proportion of cost. Therefore, they decided to examine a cost factor capable of determination. They accordingly carried out power tests in a mill where the machinery was equipped with tested electrical recorders. They felt it impracticable on short tests to make any exact allocation of overhead or general factory costs, or of distribution costs. They, therefore, concentrated solely on power costs. On this basis they found that the extra power necessary to grind home-grown cereals would normally work out at 50 per cent. more than that required to grind maize. They admitted, however, that these costings were arrived at by using machines usually employed to grind maize, and that if impact mills were used less power would be required. They felt unable to translate the results obtained into terms of money. They agreed that the machinery with which the southern mills are equipped would be unsuitable for grinding oats and that impact grinders would, therefore, have to be installed at all mills where oats would be ground for admixture purposes.

61. With regard to storage charges, they said they had obtained quotations from the owners of large corn stores in Cork City, and upon these they based the conclusion that the cost for storage of home-grown grain purchased at harvest time would average 7/11d. per ton for a period of 9 months—the charge to include weighing on receipt, spreading on lofts, re-filling into sacks, weighing out, and fire insurance—but not for turning the corn on the lofts, the charge for which would amount to an additional 2d. per ton per week. This cost figure (7/11d. per ton) was based on the assumption that the corn would be withdrawn from store in equal quantities weekly throughout the nine months.

62. They agreed that the flaking of oats or barley presented no difficulty save the cost of subsequently mixing the flaked oats or barley with flaked maize.

63. They thought that if the proposals of the Irish Grain Growers' Association were adopted it would be imperative to establish adequate administrative machinery. They considered that it would be necessary to set up a central board to administer any scheme based on these proposals. Among the duties to be assigned to that body would be that of fixing the quantity of home-grown cereals that should be retained in the country. The Board

would also have to fix the price of home-grown cereals, or, alternatively, provide some ready means to prevent the "rigging" of markets; to licence all mills; to prohibit the importation of maize meal and mixed meals; to licence and control the importation of all oats and barley, and the meals made from those cereals; to provide for the inspection of mills; and to arrange that all mills should keep records of their production. The witnesses admitted, however, that some of those duties would be exceedingly difficult, as, for example, that of fixing the prices of home-grown cereals, having regard to the fact that one of the troubles of the growers was that the international, or world's price, was not remunerative. Again, the estimation of the quantity of home-grown cereals that should be retained in the country would present very serious difficulty having regard to all the variables to be encountered in attempting to estimate consumptive requirements on the one hand, and probable production of home-grown cereals on the other. They, nevertheless, considered that these precautions would be necessary to ensure the proper working of any such scheme.

PART VI.—ADMINISTRATION.

64. We now come to the consideration of some of the questions which would arise in connection with the provision of the administrative machinery necessary to operate a scheme based on these proposals, should the Government decide to adopt any such scheme. Even as contemplated by the Irish Grain Growers' Association themselves, that machinery, both administrative and executive, would admittedly have to be of a fairly elaborate character.

65. In the first place it would be necessary to create a Board of Control and invest it with considerable powers. The Irish Grain Growers' Association, through their representative, expressed the view that the Board would be likely to operate with more general acceptance if it were composed of persons not connected with the grain growing, milling, or other kindred interests; that is to say, if it were a Government body. Among the powers with which this body would be invested would obviously have to be included that of controlling the entire imports of every kind of cereal and cereal products, otherwise they would not be in a position, except at prohibitive expense, to ensure that cheaper grain of foreign origin was not being used instead of home-grown grain for the purposes of the admixture. They would also have to exercise some form of supervision over the operations of the scheme itself, in order to secure that it was being genuinely carried out. They would further have to have power to vary, if necessary from year to year, the percentage of home-grown grain to be included in the admixture.

66. One of the major difficulties which appeared to us to be inherent in the proposals, as they were originally put before us,

was that connected with the price at which, under their operation, home-grown grain would be made available to millers. It seemed obvious that if supplies were ample, and were marketed freely, the price would probably differ so little from the ordinary world's price, which now regulates the price in this country, as to offer growers no stronger inducement than at present to maintain, much less to increase, the acreage under corn. On the other hand, if supplies were held up, or if those available fell short of the demand, it seemed certain that the price would advance beyond the maize parity value of the grain, and in that case the feeders who had to buy the mixture would be prejudiced. Judging by past experience of the trend of agricultural production, it appeared clear to us that a year in which prices were low for a particular crop would almost inevitably be followed by a smaller acreage of that crop, and *vice versa*; and that in practice it would be impracticable to avoid some sort of see-saw movement of this kind in acreage and prices from year to year. In his final submission the representative of the Irish Grain Growers' Association recognised this difficulty, and suggested that it might be obviated by a system of fixing the percentage on a sliding scale, varying with the acreage grown as ascertained on the 1st of June of each year.

67. The Board of Control would thus take the total acreage under cereal crops, as so ascertained each year, and multiply it by the average yield per acre as calculated over, say, a number of years, and so find the estimated total production; and then, taking conditions obtaining in the year 1928 as affording a sort of datum line, would proceed to fix the percentage accordingly. We pointed out, however, that the matter could not be disposed of so simply. An average is after all only the mean between extremes; and the difference between the average yield over a term of years and the actual yield in any one year might have considerable significance in a calculation of that nature. An examination of the Agricultural Statistics over a long number of years reveals an appreciable variation in the actual yields from year to year. If we take oats as, for this purpose, the most important, in point of quantity produced, of the four cereals grown in this country, the yields as recorded during each of the six years 1925 to 1930 varied as follows:—

Year.	Yield in cwts. per acre.		
1925	17.4
1926	19.7
1927	20.7
1928	19.7
1929	20.7
1930	19.6

68. As a difference in yield of one cwt. per acre of the area devoted to oats in any one year would alone represent roughly one-half of the entire quantity of home-grown grain required to provide a 15 per cent. admixture for the total quantity of maize consumed, it is clear that the Board of Control would have to adopt some more exact method of estimating supplies than that suggested by that witness. If, however, they decided to await information as to actual yields, they could not frame their estimate for a considerable period after that at which buying ordinarily begins. The statistics relating to yields, which are based on actual returns of threshings, necessarily take a good deal of time to collect, collate, and assess. The Board's difficulties would not end there. The estimate on which they would fix the percentage of home-grown grain to be mixed with maize in any year would, of course, have to be based partly on the supplies of that grain likely to be available, and partly on the quantity of maize likely to be required for consumption during the year. Here, however, they would be confronted with the difficulty of estimating consumptive requirements for twelve months ahead, and these would vary with the numbers of livestock of the various kinds likely to be fed during that year. The stock to which maize is principally fed are pigs and poultry, and the numbers of pigs kept in the country rise or fall with the prices prevailing for pork, bacon, etc. Taking the same six years as those taken above in connection with the yields of oats, it is found that the numbers of pigs in the country as ascertained on the 1st of June of each of those years were:—

1925	...	...	...	731,500
1926	...	...	...	884,216
1927	...	...	...	1,177,637
1928	...	...	...	1,182,737
1929	...	...	...	945,182
1930	...	...	...	1,052,217

69. It will be seen from these figures that the variation from 1925 to 1928 was as much as 60 per cent.

70. The Board would also have to make some attempt to estimate the probable effect of the world's supplies on the demand for home-grown grain for the export trade, also a variable feature of the industry, which in the nature of things would be certain to react on the price of that grain for the internal trade. They would also have to take into account the produce of the potato crop, and the market price of potatoes and the probable effect those factors would have on the demand for meal, bearing in mind that a "bumper" crop of potatoes, or even a normal surplus in a year when potatoes are cheap, has a considerable effect on the demand for other feeding stuffs.

71. In all these circumstances we greatly fear that the Board of Control, or indeed any other body, would find it a matter quite

beyond their skill to frame an estimate of the kind envisaged by the Irish Grain Growers' Association, namely, one that would enable them to fix the percentage of admixture at such a level as, while providing for all normal contingencies, would enable the actual surplus of home-grown grain in the country in any given year to be absorbed, and so ensure the maintenance of prices at their parity level.

72. Such difficulties do not, of course, present themselves to millers under existing circumstances, for the millers are always in a position to obtain supplies of maize at short notice and are not, therefore, called upon to carry heavy stocks. They can, accordingly, regulate their purchases throughout the year in accordance with the prevailing demand. Under these proposals, however, the Control Board would have to forecast the position for 12 months ahead and fix the percentage on that forecast, and the millers would have to proceed immediately to obtain and store the stocks of home-grown grain necessary to enable them to comply with the Board's order for the ensuing 12 months.

As already pointed out, the Board would have to control the importation of grain and grain products. They would clearly have to prohibit the importation of maize meal and of mixed feeding stuffs composed partly of maize meal. All other grain and grain products they would admit under licence. These would include not only barley for malting and wheat for flour milling, but also barley, oats, wheat and rye, for seed purposes.

73. In order to determine with some reasonable degree of accuracy the quantities of such grain and grain products which they might admit under licence, without endangering the proper working of the admixture scheme, the Board of Control would need to provide themselves with some means of forming a closely approximate estimate of the country's real requirements in the matter of each of those commodities. They would also require to have some means of subsequently ascertaining, if necessary, the final destination of such supplies as they did admit as a check on the working of the licensing method. They would, therefore, have to make themselves acquainted with the concerns of—and we fear in practice could scarcely avoid being a source of considerable vexation to—interests far outside those immediately associated with the proposals. Furthermore, they would have to be provided with ample executive assistance for the *bona fide* working of the scheme in order to ensure that millers would use the requisite percentage of home-grown grain of sound quality for the purposes of admixture, and to prevent or detect abuses. All this would entail the establishment not only of a fairly large office staff, but also of an adequate number of inspectors, capable of supervising the working in the mills. We have little doubt from the general experience of the cost of Boards of this kind that the annual cost of such a Board of Control would not fall far short

of £25,000 per annum. This cost would have to be borne either by the taxpayer, or by the industry, or partly by one and partly by the other. If borne by the industry it might be recoverable by a licence duty payable by each miller, according to his output and, it may be assumed, would be passed on by him to the consumer; and, on the basis of the average consumption of maize meal in recent years, would be equivalent to almost 1d. per cwt. of meal used.

PART VII—CRITICAL EXAMINATION OF THE EVIDENCE.

74. It would appear that the activities of the group of farmers which ultimately constituted the Grain Growers' Association were, in the first instance, restricted to endeavours to secure better prices for barley and a market for the portion of that crop which was in excess of the home brewers' and distillers' requirements, and that, subsequently, with a view to obtaining better prices for oats, the admixture proposals were related to all home-grown cereals. The fact that, with but two exceptions, all the farmers who gave evidence in support of the proposals came from barley-growing districts, and that the majority of these in their evidence referred mainly to barley, indicates that one of the witnesses who opposed the proposal was justified in his contention that the scheme was designed mainly in the interests of barley growers and not of the growers of other cereals. In this connection we cannot ignore the fact that whilst the average area devoted annually to oats during the 5 years 1926-1930, inclusive, was 650,155 acres, and whilst the average annual production of this cereal over the same period was 653,039 tons the average annual gross exports of oats during that 5 year period was only 40,310 tons, i.e., less than 1/16th of the entire production.

75. On the average of the 5-year period 1926-1930 the area under wheat in the Saorstát was but 30,105 statute acres. Only one of the witnesses who favoured the proposals made specific reference to wheat. His land is of a fairly heavy nature, and, accordingly, suited to wheat. The price at which this witness stated he was prepared to grow wheat was 20/- per barrel, i.e., £8 per ton, and this applied to a variety, or to varieties, of wheat not suited to flour millers' requirements. Without any further detailed examination it is obvious that a miller could not afford to use for admixture purposes wheat costing £8 per ton in the green state and sell the resultant meal mixture in competition with maize meal when what may be regarded as normal prices for maize obtain. We are, moreover, disposed to agree with the expert witness who testified that there is not any high yielding variety of Spring wheat suitable for general cultivation under the

conditions obtaining in this country, and also that the low yields to be obtained from any of the varieties of Spring wheats now in existence preclude their substitution for oats or barley. For all these reasons we rule out from further consideration, the suggestion that wheat would be grown for admixture purposes. Incidentally we may mention that owing to unfavourable weather during the past Winter, many farmers in various parts of Saorstát Eireann who had seed wheat on hand for sowing for particular purposes, as well as those in areas where the cultivation of wheat is fairly general, were unable to prepare the land for the reception of the seed at the normal sowing season.

76. In Saorstát Eireann rye is grown only on poor, sandy or peaty soils. Its cultivation has declined and the area annually put under this cereal, on the average of the last 5 years, is but 5,050 statute acres. We understand that the Department of Agriculture and the Plant Breeding Department of the Agricultural Faculty, University College, Dublin, are endeavouring to secure better yielding varieties of rye for cultivation in Saorstát Eireann, but we do not think it is at all likely that this cereal will be grown to a much greater extent than during the past few years. Moreover, none of the witnesses who appeared before us made any specific reference to rye and we think, therefore, that this cereal may well be disregarded for the purpose of our inquiry.

77. The whole case made by the first witnesses who came forward in support of the admixture proposals was that the adoption of those proposals would have the effect of so increasing the price of grain, without necessarily, or to a serious extent, increasing the cost of the meal, as to make the growing of barley and oats remunerative. This view was crystallised in a question addressed by the representative of the Irish Grain Growers' Association to the fourth witness examined, namely:—

Representative: “There is no method known to you by which the price (of home-grown grain) could be increased except this one?”

Witness: “Except this one.”

It was, moreover, argued that the enhanced price thus secured would have the effect of inducing farmers to grow more grain.

78. Here we take note of the objections raised against the proposals by farmers' witnesses from districts outside what are known as the grain growing counties (i.e., the counties where grain is grown mainly for sale) and in particular those from Counties Cavan and Monaghan. Briefly stated, their opposition to the proposals was based on the conviction that the adoption of the proposals could not fail to increase the price of home-grown grain, and consequently of the mixed meal as compared with maize meal. Each of them agreed in turn that the opposition would be fully met by an explicit and

authoritative assurance that the mixed meal would not cost any more than the ordinary straight run maize meal; but they failed to see how such assurance could be given. In their opinion, the agitation in favour of the proposals would be meaningless unless the advocates were convinced that the adoption of those proposals would bring about an increase in the market price of that grain by creating a new demand for it. On the other hand if (as they were themselves convinced would occur) the adoption of the proposals should lead to an increase in the price of home-grown grain, then either of two things must happen (both equally unfavourable to feeders), namely, the price of the mixed meal would be correspondingly higher than that of maize meal, or the quality of the meal would be debased by the use of inferior grain, or of adulterants, which analysis could not detect.

79. The farmers of Counties Cavan and Monaghan entered a very strong plea that their method of farming was more rational than that of growing grain mainly for sale. It comprised a system of mixed farming under which the farmers produced live-stock and livestock products, utilising their land to provide all the food for such stock that it was capable of producing, and supplementing this by the purchase of other feeding stuffs. By this means they produced a finished product for which there was a constant demand; while by growing corn for sale they would be producing only a raw material of that product. While, of course, they did not produce as much of any one of the cereals as they could do if their lands were devoted more exclusively to that purpose, they nevertheless made the fullest use of their land having regard to the necessity of providing a definite area of pasture for the summer feeding of their stock. They pointed out that their lands were not of such good quality as lands in more favoured parts of the country, but contended that they made the best use of those lands; and that they had been hitherto content to carry on, facing not only their own difficulties, but contributing their quota towards the cost of schemes from which they derived little if any benefit. They objected to being taxed again for the benefit of farmers living in an area practically conterminous with that for which so much had been already done at the general taxpayers' expense by means of the sugar beet subsidy.

80. Without expressing any opinion as to the suitability or otherwise of the type of farming pursued in those counties for adoption in other parts of the country, we are satisfied that the farmers in Counties Monaghan and Cavan and, indeed on small holdings in many other parts of Saorstát Éireann, are following a system which, having regard to the manner in which the world's food supplies are now organised, is best calculated in those districts to produce the most stable profit from the pursuit of agriculture. It is, moreover, the system which approximates most closely

to that followed by our principal competitors on the British market, the farmers of Denmark; and we are fully satisfied that it would not be in the national interest to adopt these proposals if they should have the effect of increasing the price of this important feeding stuff to those farmers who are mainly small holders and who, in the marketing of their produce, have to meet world competition.

81. We realise, of course, that land under tillage finds employment for more people than does the same area under grass and that, accordingly, it would be in the national interest to promote the extension of tillage if this could be done without imposing an undue burden on the community as a whole, or of jeopardising some other important branch of agricultural activity. We also realise that the growing of corn involves in turn the growing of a root or green crop, each of which calls for more labour than does corn, and that such a rotation necessitates, as the Irish Grain Growers' Association pointed out, the feeding of live stock during the winter, in order to provide an outlet for straw and roots and a means of producing manure.

82. Under our terms of reference, however, we were not called upon to review, and to make recommendations in regard to, the general agricultural policy of Saorstát Eireann—our function was restricted to an investigation of the proposals that all maize products should contain an admixture of home-grown grain and of the results which the adoption of those proposals would be likely to have in relation to producers of home-grown grain and consumers of maize meal and other maize products.

83. So far as we have been able to ascertain, proposals strictly analogous to these have not been adopted in any country; and the statistics put before us by the advocates of these proposals setting out in regard to various European countries the respective proportions of land devoted to tillage, the value of the agricultural exports per acre under crops and pasture, trade balances (favourable or otherwise) per head, and stocks of animals on farms, have little or no bearing upon the questions which we were asked to decide. With regard to the statistics relating to Roumania, Hungary, Germany, Belgium, Poland, Luxemburg, Czecho-Slovakia, and a number of other countries showing, in regard to each, the credit, or debit, balance of trade per head, we may, perhaps, remark that in many parts of those countries the land is tilled because, owing to climatic conditions, or to the nature of the soil, grass cannot be grown successfully. With regard to the more detailed statistics submitted relative to Denmark we must also observe that although much of the land of that country is of a nature which under the normal climatic conditions that prevail there is less suitable for permanent pasture than even the lighter soils on which barley is grown in this country, yet Danish farmers turned from the growing of corn

for sale to the production of butter, cheese, pork, bacon and eggs. In this connection the following quotations from the Report of the Scottish Commission on Agriculture to Denmark in 1904 will be of interest (see p. 68 of Report published by Messrs. William Blackwood & Sons)—

“ At one time Denmark was regarded as one of the chief grain-growing countries in Europe.” Then reference is made to the crisis which marks the great turning point in the fortunes of agriculture in Denmark and the foundation of the general prosperity of that country and the report continues:—“ It is not necessary here to enumerate the patriotic and able men like Professor Segeleke, who laboured till they were almost wearied in guiding their countrymen through this trying time. They ultimately succeeded in inducing the farmers to give up grain-growing, which had reduced both them and their land to a state of poverty, and not only to adopt dairying, but to organise and conduct it with such systematic precision and success as to make their practice the admiration of all who have seen it.”*

84. The practice followed by farmers in County Cavan, whose representatives before the Tribunal, as already detailed, offered the most strenuous opposition to the proposals of the Irish Grain Growers' Association, is similar to that of Danish farmers, inasmuch as their main receipts are derived, as in the case of the Danes, from dairy cattle, pigs and poultry; and for the feeding of their cattle, pigs and poultry the County Cavan farmers supplement the produce of their tilled land with imported feeding stuffs, just as do the Danish farmers who compete with them in the sale of dairy, pig and poultry products on the British market. Nor is this practice unique in Saorstát Eireann, for a similar system of farming is followed in many other parts, for example, in Counties Clare, Donegal, Kerry, Leitrim, Monaghan and the western portion of County Cork. Moreover, in all the less fertile parts of the country, where the holdings are small, imported feeding stuffs, consisting largely of maize meal, are purchased to supplement the produce of the tillage crops, despite the fact that a very considerable proportion of the arable land on such holdings is tilled.

85. The representatives of the Irish Grain Growers' Association realised the force of the objection that the scheme was designed to benefit one section of the farmers at the expense of another, and disclaimed this intention, stating that all farmers wherever situated could grow more corn and thus share the benefits. To this contention the obvious answer was made that if that should happen the supply would speedily outrun the demand, with disastrous effects on the price; and then the growers, both old and new, would be worse off than before.

86. From this stage onwards the advocates of the proposals contented themselves with the assertion that what they really

* See note in Appendices.

wanted was only an assured market for a definite quantity of home-grown grain. We confess that we are unable to see what benefit a demand, unrelated to price, would confer on producers. If, as was argued before us, existing prices are unremunerative, we fail to see how the position of the producer would be improved by an increase in the demand which would leave the price at its old unremunerative level. This line of reasoning is, however, so absurd that we prefer to think that the advocates of the proposals really believed that the price would be increased but that the miller could afford to pay the difference without increasing the price of the meal. Assuming this to be the correct view of the position it follows that if the scheme were adopted the price of maize would govern the price to be paid for home-grown grain for admixture purposes, and that the price of the latter would rise or fall with the fluctuations of the maize market.

87. Although, generally speaking, the world's prices of oats and barley—as well as of some other feeding stuffs—move in sympathy with the world's price of maize, nevertheless, for reasons into which we need not enter here, these movements are not absolutely parallel, and, therefore, cannot be taken as affording any reliable indication of the relative values of oats and barley, or what we may term their maize-parity values.

88. For our purposes, the parity value of home-grown grain with maize would be the price which the miller could give for home-grown grain in its green state (i.e., as marketed after harvest) taking the price of maize as the standard and making full allowance for costs which affect the home-grown grain and do not affect maize meal. In order to determine with any reasonable degree of accuracy the costs for which allowance should be made, it is necessary to consider certain factors which bear on the question, e.g., the relative moisture contents, keeping properties and impurities of all three, as well as such other matters as the differences in costs arising from the relative accessibility of supplies, the different methods of purchase and storage, and the interest charges for capital invested in the stocks.

89. All the witnesses engaged in the milling industry who appeared before us were agreed that maize, as imported into this country, is remarkably uniform in its quality and composition. Its moisture content varies within very narrow limits, and for practical purposes may be regarded as averaging 12.5 per cent. With this degree of moisture, maize can be stored to any depth without risk of deterioration, and the purchaser is, therefore, not under the necessity of conditioning it, by kiln-drying or lofting and turning it, and is consequently able to economise in the provision of storage accommodation. Occasionally, but infrequently, some small lots are received which contain a higher degree of moisture. These would heat and deteriorate if stored for any considerable period in the condition in which they are received. What is usually done in such cases is to mix these small lots, preparatory to grinding, with larger lots of dry

maize which absorb the excess moisture. Maize is also comparatively free from impurities which usually consist of chips off the corn cob—so free indeed that most grist millers do not consider it necessary to subject the grain to any cleaning process before milling it.

90. As will be seen by reference to Table I in the Appendices, which gives particulars of the imports of maize and maize meal in recent years, this country obtains its main supplies of this cereal from South America. Of these, the great bulk come in direct cargo lots to the ports in Saorstát Éireann. Smaller, or “parcel” lots, which, we understand, comprise maize which has formed part of the general cargo of an ocean-going vessel, or which, as sometimes happens, has been carried rather as ballast than as cargo, are also received from Liverpool. These lots are usually availed of by grist millers on our Eastern coast, and are sometimes obtainable at prices below those ruling for cargo lots. Owing to the manner in which the maize importing industry is organised in this country and in Great Britain, millers here are always in a position to obtain supplies at comparatively short notice. They may buy by telephone, by telegram, or by letter for immediate, or for future, delivery; and, even when they buy for future delivery, that is to say, when they contract for delivery to be made several months ahead, they are not called upon to pay for the maize until the receipt of the documents immediately before delivery. Accordingly they are not under the necessity either of locking up capital in the maize for any considerable period, or of providing storage accommodation for any supplies beyond those required to meet the current demands of their trade. It appears to be the general practice among grist millers to hold about one month's supply of maize in store.

91. Conditions are very different in the case of home-grown grain. In quality and composition oats are much less uniform than maize. Table III. (Imports and Exports of Wheat, Barley, and Oats) shows that of the average total quantity of oats exported annually in the period covered by the table, roughly 60 per cent. were black oats and 40 per cent. white oats. These figures may be taken as roughly indicative of the proportions in which these two classes of oats are put on the market for general purposes. The oat meal milling trade is a special trade requiring the best quality of white oats. Black oats are inferior to white oats in feeding value, and this inferiority is reflected in the prices obtainable in the market for white and black oats respectively, the price for black oats being normally 1/- to 2/- per barrel below that obtaining for white oats. Moreover, black oats contain a greater proportion of husk to kernel. Apart from this fundamental difference in quality as between white and black oats, there is also a good deal of variation in quality and composition as between varieties within each of the classes, arising from a number of causes, as for example, the nature of the soil on which the oats are grown, the manurial treatment of the crop, and the

character of the seasons. In this connection one of the principal witnesses put forward by the Irish Grain Growers' Association informed us that while in his county in 1929 the proportion of inferior oats in an average crop did not exceed 5 per cent., yet in an unfavourable season, such as 1928, it might rise to 20 per cent.

92. Considered purely as a feeding stuff, barley may be regarded as normally more uniform in quality than oats, there being as a rule comparatively little difference in this respect between the various types of two-rowed varieties usually grown in Saorstát Eireann. The composition may, of course, vary to some extent with the seasons, for in some years the ears do not fill properly.

93. With regard to the relative moisture contents of home-grown grains, some of the evidence tendered to us was put forward by witnesses who admitted that they had not themselves made actual tests of moisture content and, consequently, were not in a position to speak from personal knowledge on the subject. We decided that we must disregard such testimony, especially as we had evidence on the subject from two witnesses who had made such tests—one habitually in the course of his business, and the other specially in connection with the preparation of his evidence. We had also information compiled from the records of the Department of Agriculture on the subject.

94. With regard to oats, the first of the two witnesses referred to stated that the moisture content varied between 18 and 20 per cent. The other witness stated that, according to the results of the special test carried out by him, the ordinary limits of variation would be 18 to 21 per cent. The returns submitted by the Department of Agriculture related to 39 samples of white oats and 24 samples of black oats which had been drawn specially for the purposes of our inquiry from stocks of oats of the 1929 harvest in the hands of farmers or corn merchants in many different parts of the country; and to 50 samples of white and 22 samples of black oats of the 1930 harvest obtained in a similar manner. The average moisture contents of the samples of white oats were:—1929 harvest, 16.72 per cent.; 1930 harvest, 19.57 per cent. The corresponding figures for black oats were 17.72 per cent. and 20.22 per cent., respectively. As, however, the 1929 harvest was an exceptionally favourable one, and the 1930 was exceptionally unfavourable, it seems not unreasonable to assume that taking one year with another the moisture content of home-grown oats threshed and marketed soon after harvest will probably be found to be about 18.5 per cent.

95. In the case of barley the recorded data in the possession of the Department of Agriculture are much more detailed and extensive than in the case of oats. The Department's records relate to samples drawn annually from the produce of their large scale variety trials, and are the results of tests made of grain in the condition in which it would be delivered to the maltsters. The

following are the results of those tests as tabulated:—

1921	...	...	17.4	1926	...	...	18.3
1922	...	...	20.9	1927	...	...	20.2
1923	...	...	18.6	1928	...	...	18.5
1924	...	...	21.0	1929	...	...	17.8
1925	...	...	17.8	1930	...	...	20.5
Average			...	...	...	...	19.1

96. We are informed by the Department of Agriculture that the results here shown are confirmed by the much more extensive tests carried out over a period of 25 years by one of the chief buyers of barley grown in Saorstát Eireann. We, therefore, conclude that, taking one year with another, the average moisture content of barley threshed and marketed immediately after the harvest will probably be found to be 19.0 per cent.

97. In these circumstances, we cannot accept the assumption put forward on behalf of the Irish Grain Growers' Association that the average moisture content of home-grown grain is 18 per cent.

98. With regard to the keeping qualities of grain, there was virtual unanimity among the witnesses who appeared before us that home-grown grain threshed soon after the harvest will not keep if stored in that condition. It must either be kiln-dried, or spread on granary floors and turned at frequent and regular intervals. There was less agreement in the views expressed by the witnesses as to the point to which the moisture content would have to be reduced in order that the grain might be safely stored in bulk. Here again we feel obliged to rely on evidence submitted as the result of actual tests and experience. Mr. Odlum stated that the maximum moisture content at which grain would keep in bulk without being turned would be 13 per cent. but that a safer figure would be 12, it being better to aim at a little lower than the maximum. We understand that this also is the practice of maltsters who kiln-dry barley for storage purposes.

99. We have already stated (pars. 94 and 96) that in our opinion the average moisture content of Saorstát oats must be assumed to be 18.5 per cent. and of barley 19.0 per cent. or say, 18.7 per cent on the average of the two grains. To reduce a moisture content of 18.7 per cent. down to 12.5 per cent.—the figure we have adopted as representing the normal moisture content of maize—would involve a loss in weight of the original grain, not of 6.2 per cent., but of slightly over 7 per cent. and we must accordingly reckon the shrinkage due to the conditioning of home-grown grain as being approximately 7 per cent. by weight.

100. With regard to the relative proportions of impurities in maize and home-grown grain, we cannot accept the view put forward on behalf of the Irish Grain Growers' Association that home-grown grain is normally of uniformly high quality. Experience shows very definitely that all the grain produced is not of the

same good and sound quality. In every crop of cereals as usually threshed there is a certain proportion of inferior grain, small and badly filled pickles, tailings, particles of straw and weed seeds. Oat millers buy, and as a general rule are offered, only well-cleaned samples, yet they usually screen out $2\frac{1}{2}$ -3 per cent. of impurities and light corn. The witnesses had apparently no exact knowledge of the nature of bulks of black oats as offered to merchants. We are, however, informed by the Department of Agriculture that these frequently contain as much as 10 per cent. of impurities and unfilled or very light pickles, and that the Department are often called upon by merchants to urge farmers to adopt better methods of winnowing and cleaning their oats. With regard to barley, we find that on the average the proportion of impurities is much lower than in the case of oats.

101. With regard to the relative availability of supplies it would appear that the great majority of farmers in Saorstát Eireann who grow grain for sale, thresh the bulk of the crop immediately after harvest and at once place it on the market. They have, as a rule, no accommodation for the storage of grain, and in most cases they require cash to meet liabilities incurred during the year. The bulk of the oats and barley intended for sale is, therefore, put on the market in October and November. It was contended by advocates of the admixture proposals that the adoption of these proposals would encourage growers to stack their corn and thresh it at intervals up to the end of Spring. On the other hand, such millers as appeared before us were satisfied that unless some provision were made whereby farmers could receive cash advances against the corn so held, they would continue to market it as soon as possible after harvest, and consequently that the grain which would be required for admixture purposes would have to be secured during the period between harvest and Christmas. We are in full agreement with this latter view, and we are satisfied that the millers or merchants would have to finance such stocks as would need to be held for admixture purposes during the remaining eight or nine months of the year, and would also require to provide storage accommodation for such grain; and, as we have already indicated, facilities for conditioning it.

102. In estimating their requirements for the ensuing year, millers would probably have to be guided by their sales during the preceding year, or series of years. But demand varies largely according to the numbers of pigs being fed in the country, and as will be seen by reference to Table 1 of the Appendices, the net consumption of maize and maize meal during the five years reviewed therein varied from seven and one-third million cwt. in 1926 to eight and a half million cwt. in 1928. It would, accordingly, be a matter of no little difficulty to estimate with any fair degree of accuracy at harvest time what

quantities of home-grown grain would be required for the ensuing twelve months. It was argued by the advocates of the proposals that somewhat analogous schemes were already in force in other countries. So far, however, as we can ascertain the only admixture schemes hitherto attempted in any country have applied to bread stuffs, and, of course, the same difficulty would not be experienced there, as it is generally a relatively easy task to estimate fairly closely the changes in the numbers, and so of the requirements, of the human population of a country.

103. Assuming the average consumption of maize meal in Saorstát Eireann to be in the neighbourhood of 400,000 tons per annum, the quantity of home-grown dried grain which would be required to provide an admixture equivalent to 15 per cent. of that volume would be 60,000 tons. A bulk lot of, say, 100 tons would in practice have to be constituted from the produce of many growers whose individual lots would vary considerably. Millers would, therefore, have to buy on sample, just as maltsters, oat meal millers and merchants do at present. This method of purchase entails the checking of each lot against the sample on which the price was fixed. Here the millers whose mills are situated in grain-growing districts would have an advantage over millers whose mills are remote from such districts. In the former case the growers would bring samples to the local mills and would later deliver the grain thereat. In the latter case the miller would either have to buy his requirements of home-grown grain through a merchant or else send a representative to corn markets in grain-growing districts, first to buy on sample, and later to take delivery of, and assemble, individual lots, checking each against the respective sample. Other mills are so situated that they might obtain portion of their requirements locally, as in the case of the first type of mill, and the balance as in the case of the second.

104. Seeing that, as already explained, the bulk of the available supplies would be marketed each year from September to November, or October to December, it follows that the millers, or merchants on their behalf, would have to purchase during those months the greater part of their requirements of home-grown grain, not only to meet the current demands of their trade for those months, but to cover their estimated needs for the subsequent nine months. These supplies would need to be stored, and if stored so as not to deteriorate, they would have either to be kiln-dried or spread to a shallow depth on granary floors and turned frequently and regularly for several months. As this latter method of conditioning would entail the provision of more extensive accommodation than would be required for ordinary bulk storage of dried grain, we assume that kiln-drying would be the method of conditioning normally adopted. Some maize millers, principally those engaged also in the manufacture

of oat-meal, are already provided with kilns which they might possibly use for the drying of the grain for admixture purposes, as well as of the oats for the manufacture of oat-meal. Others have no kilns; and many have neither kilns nor spare accommodation. Merchants, as a rule, condition their grain by lofting and turning, and their premises are not commonly equipped with kilns—either old type or patent. Advocates of these proposals contended that disused stores were available in the grain growing districts and might be utilised for these purposes. Such premises would, however, need to be renovated, staffed, and equipped with kilns.

105. With regard to milling, it was generally agreed that the disc machine which is used for the manufacture of maize meal would be unsuitable for the grinding of home-grown grain to an equal degree of fineness. Expert opinion concurred in the view that the most economical method of doing so would be by the use of high power impact grinding machines. So far as we have been able to ascertain very few mills in Saorstát Eireann are at present equipped with this type of machine. Hence it may be assumed that if these proposals were adopted the great majority of the mills would have to purchase and instal such machines. This would entail capital expenditure varying with the output capacity of the machines.

106. Finally, with regard to the process of mixing, it was generally agreed that the mixing of the two meals which had been ground on separate machines could be automatically carried out by the delivery of the meals out of their respective hoppers on to a travelling band. This would entail the installation of the necessary equipment, including that for measuring and regulating the flow of the meal. It was suggested that in very small mills, the mixing could be carried out by manual labour, but in considering these proposals we have thought it best to have regard to their effect on the working of the more general type of mill in the country.

107. It is obvious that, in estimating the probable effects of the proposals advocated by the Irish Grain Growers' Association, regard must be paid to the foregoing considerations.

108. We have indicated certain differences which would have to be taken into account in regard to the methods and costs of purchasing maize and home-grown grain; in the relative proportions in which impurities are normally to be found in these cereals; and in the moisture contents of green home-grown grain and of maize as it is imported, i.e., as it reaches the miller. We have also shown that in practice millers would need to secure their year's supply of home-grown grain immediately after harvest; that they would have to have it kiln-dried; and that they would have to provide and maintain storage accommodation for the bulk of the grain for the greater part of the year. Therefore,

when contrasting the price of maize as imported with that of green home-grown grain, as delivered at the seller's station, certain additions would have to be made to the price of the latter in order to arrive at its true cost as compared with maize. These additions would be in respect of (a) the additional cost of buying (b) the cost of kiln-drying (c) the loss in weight from shrinkage in the process of kiln-drying (d) the extra charges for storage (e) interest on the capital locked up in the grain during the period of storage (f) the extra cost of grinding, and (g) the cost of mixing.

109. We shall now attempt to assess these costs under their respective heads:—

(i) *Buying*.—As already explained, maize may normally be bought at any time in large quantities by letter or telegram and no charges are incurred for agents or buyers. With home-grown grain, however, the position would be different. As already pointed out, the millers' bulk supply would have to be constituted from many lots the produce of different growers, bought either at the mills in grain growing districts, or by the millers or merchants at local markets. We are satisfied from the investigation we have made into this aspect of the proposals that the normal charge for the buying of the grain would amount to at least 3d. per barrel, or say 3/- per ton.

(ii) *Kiln-drying*.—The evidence put before us on this point varies to some extent. One witness, with long experience of milling, who was put forward by the Irish Grain Growers' Association, produced figures showing that the cost of drying grain on a flat head kiln worked out at 7/- per ton, and on an automatic kiln at 4/7 per ton. Mr. Odlum's original estimate of the cost in the case of the latter was 4/5 per ton. It was contended on behalf of the Irish Grain Growers' Association that certain of the constituent charges were excessive and that the estimated cost on the flat head kiln should be 5/- per ton and on the automatic, 2/9 per ton. We believe that in practice the automatic type of kiln would be more generally installed and we consider that a conservative estimate of the cost of drying grain on that type of kiln would be not less than 3/- per ton.

(iii) *Loss of Weight*.—In this connection we have already pointed out that when grain containing 18.7 per cent. moisture is dried down to 12.5 per cent. the loss in bulk is not merely that represented by the difference between the two percentages of moisture content, as might appear to be the case at first sight, and as indeed was the basis on which the representative of the Irish Grain Growers' Association worked out his calculations, although he was careful to acknowledge that that basis was not strictly correct. The actual loss of weight entailed by drying down 100 parts of grain containing 18.7 per cent. of water, so that the moisture content of the residue of the grain will not exceed 12.5 per cent., is slightly over 7 per cent. If, however, it is desired to buy a quantity of green grain which after suffering

this reduction of 7 per cent. will give one ton of dried grain, a simple calculation will show that 1.075 tons of green grain will be needed. Therefore, the charge to be added under this head is in effect $7\frac{1}{2}$ per cent. of the price of the green grain.

(iv) *Storage*.—As already explained, the millers' full requirements of home-grown grain for the year would have to be obtained after the harvest, say, in the period from October to December. We take it for granted that the requirements for his current trade during those three months would be supplied from his current purchases and that little or no storage charges would be entailed in respect of those. We have therefore assumed that, for practical purposes, the charges for storage should be calculated on three-fourths of his annual requirements for a period of nine months. The two witnesses who represented the maize millers of the South of Ireland, in giving evidence on this part of the case submitted quotations obtained from the owners of large corn stores in Cork City showing that the cost of storage of grain for a period of nine months would amount to 7/11 per ton. Mr. Odium in his evidence estimated the cost at $\frac{1}{2}$ d. per barrel, or, say, 6d. per ton per month, or 4/6 per ton for nine months. As the former figure includes the cost of weighing on receipt, spreading on lofts, refilling into sacks, weighing out and fire insurance, and as it is in substantial agreement with the terms set out in the table of charges published by another large concern of the same kind, we think it would be found in practice to represent approximately the cost involved.

(v) *Interest*.—Interest would be chargeable upon the capital locked up in the stocks of home-grown grain stored by or on behalf of millers. As already explained, the grain would represent the supply required to meet the millers' needs for a period of 9 months in each year. Although the demand for maize meal is normally greater in the summer months than at other periods of the year, yet, for the sake of simplicity, we assume that the stocks would go into consumption in uniform quantities month by month, and we therefore conclude that interest would be chargeable on the capital represented by the full quantity stored for a period of $4\frac{1}{2}$ months. This capital would, of course, be made up of the original cost of the grain plus the charges incurred for buying and kiln-drying. The rate of interest would, no doubt, vary with the price of money, but, again for the sake of simplicity, we have assumed that it would be at the rate of 5 per cent. per annum.

(vi) *Extra Cost of Grinding*.—We are satisfied from the information placed before us by milling experts that oats could not be ground to the fineness of maize meal by the ordinary disc machines in use in the majority of the mills, except at prohibitive cost; and that even with the use of machines of the impact type the cost of the process of grinding would be greater than that of grinding maize meal alone in the ordinary way. In his evidence before us Mr. Odium stated that the cost of power for grinding

oats would be four times the cost of that for maize, and that taking the power cost for grinding maize to be about $1/10\frac{1}{2}$ per ton, the difference would be about $5/7\frac{1}{2}$ per ton. From the other inquiries we have made, however, it appears to us that if the proposals were actually in operation the extra cost in the normal out-turn should not exceed $4/6$, and we have adopted that figure, although possibly it is a conservative estimate. It is also clear that owing to the skin or husk of barley this cereal would be more costly to grind than maize, but less costly than oats. As a result of the inquiries we have made we estimate that the additional power costs in the case of barley would amount to 1/- per ton of the kiln-dried grain.

(vii) *Mixing*.—It was generally agreed that in practice the maize and the home-grown grain intended for admixture purposes would be ground separately and mixed subsequently. In the smaller mills, the mixing would probably be carried out by hand; but in the larger mills automatic machinery would doubtless be employed for the purpose. To mix by hand would be a laborious operation. Definite quantities of each meal would have first to be weighed separately in bags or in some other type of container, then emptied out on the mill floor in a mass, and this mass would have to be turned and re-turned many times with shovels in order to ensure thorough mixing; after this the mixed meal would have to be shovelled back into bags and re-weighed. In addition to the extra cost for labour, this method of mixing would be almost certain to entail some loss from wastage. We incline, therefore, to the belief that in practice the majority of mills would instal automatic machinery for this purpose, and from the evidence we have obtained on the subject we are satisfied that the cost of this process would amount to at least 1/- per ton of the finished meal.

110. We can now proceed to set out in tabular form the incidence of these various cost factors in determining the price which the millers could afford to pay for home-grown green grain to enable them to produce the mixed meal at the same price as pure maize meal. For this purpose we first take the quantity of green grain, with 18.7 per cent. moisture content, required to yield one ton of dried grain containing, say, 12.6 per cent. moisture. Then, taking as a standard the price of one ton of maize delivered on the mill floor, we deduct therefrom the costs and charges already enumerated as applying to home-grown grain but not to maize or maize meal, namely, those for buying, drying, storage, grinding, mixing and interest; and in the result we show the maize-parity values of (1) green white oats of best quality, and (2) of green barley of good feeding quality. We have already shown that the average moisture contents of oats and barley are slightly different, namely, 18.5 per cent. and 19.0 per cent. respectively; but, for the sake of simplicity, in these estimates we have taken the moisture content of each as 18.7 per cent., that is to say, the mean of the two averages (see paragraph 99). This may seem to be weighting the scales slightly against oats and slightly in

favour of barley, but in the net result the difference is so slight as to be negligible for practical purposes.

EXAMPLE I.

Calculation of maize-parity value of home-grown green oats delivered at the mill when maize costs £7 10s. 0d. per ton on the mill floor.

It requires 1.075 tons (1 ton, 1 cwt. 2 qrs.) of oats containing 18.7 per cent. moisture to yield one ton of dried grain with 12.6 per cent. moisture.

Cost of maize per ton £7 10s. 0d. or £7.500

To ascertain the price which can be paid for green oats there must be deducted from the maize price the costs and charges previously enumerated, viz:—

(1) Buying 1.075 tons green oats at 3/- per ton.	£0.161	
(2) Kiln drying 1.075 tons at 3/- per ton.	0.161	
(3) Storage at 7/11 per ton on $\frac{3}{4}$ ton.	0.297	
(4) Extra cost of power for grinding 1 ton dried oats at 4/6 per ton.	0.225	
(5) Cost of mixing $6\frac{3}{4}$ tons of the finished meal at 1/- per ton	0.333	1.177

Parity value of 1.075 tons of green oats plus interest charge on the proportion thereof which has to be stored.	6.323
Deduct interest charge ($\frac{9}{649}$ of £6.323)	0.088

Parity value of 1.075 tons green oats. £6.235
or £5 16s. 0d. per ton, or, say, 10/2 per barrel of 14 stones.

EXAMPLE II.

Calculation of maize-parity value of home-grown green barley delivered at the mill when maize costs £7 10s. 0d. per ton on the mill floor.

Cost of maize per ton £7 10s. 0d. or £7.500

Costs of buying, kiln-drying, storage, and mixing, as in the case of oats—(Example I). £0.952

Extra cost of power for grinding at 1/- per ton. 0.050 1.002

Parity value of 1.075 tons of green barley plus interest charge on the proportion thereof which has to be stored	6.498
Deduct interest charge ($\frac{9}{649}$ of £6.498)	0.090
Parity value of 1.075 tons green barley	6.408
or £5 19s. 3d. per ton, or 11/11 per barrel of 16 stones.	

The interest charge is taken at the rate of 5 per cent. per

annum on the parity value of three-fourths of the ton unit of dried grain for a period of four and a half months. This amounts to $\frac{5}{100} \times \frac{3}{4} \times \frac{9}{24}$, or $\frac{9}{640}$ of the parity value, and is equivalent to $\frac{9}{649}$ of the amount ascertained above as representing the parity value plus the interest charge. In strictness interest should also be deducted from the price of maize in respect of the outgoings for buying and kiln-drying (see par. 109 (v)), but the amount is exceedingly small and for the sake of simplicity it has been disregarded.

By working out other examples the following Table of comparative values has been constructed:—

Price of Maize, per ton, on Mill Floor	Parity value per ton of Green Home-grown Grain Delivered at Mill		Approximate Maize-parity value per Barrel	
	Oats	Barley	Oats	Barley
£ s. d.	£ s. d.	£ s. d.	s. d.	s. d.
3 10 0	2 2 7	2 5 10	3 9	4 7
3 15 0	2 7 2	2 10 5	4 2	5 1
4 0 0	2 11 10	2 15 0	4 6	5 6
4 5 0	2 16 5	2 19 7	4 11	6 0
4 10 0	3 1 0	3 4 2	5 4	6 5
4 15 0	3 5 7	3 8 9	5 9	6 11
5 0 0	3 10 2	3 13 4	6 2	7 4
5 5 0	3 14 9	3 17 11	6 6	7 10
5 10 0	3 19 4	4 2 6	6 11	8 3
5 15 0	4 3 11	4 7 1	7 4	8 9
6 0 0	4 8 6	4 11 8	7 9	9 2
6 5 0	4 13 1	4 16 3	8 2	9 8
6 10 0	4 17 8	5 0 10	8 7	10 1
6 15 0	5 2 3	5 5 5	8 11	10 7
7 0 0	5 6 10	5 10 0	9 4	11 0
7 5 0	5 11 5	5 14 8	9 9	11 6
7 10 0	5 16 0	5 19 3	10 2	11 11
7 15 0	6 0 7	6 3 10	10 7	12 5
8 0 0	6 5 2	6 8 5	10 11	12 10
8 5 0	6 9 9	6 13 0	11 4	13 4
8 10 0	6 14 4	6 17 7	11 9	13 9
8 15 0	6 18 11	7 2 2	12 2	14 3
9 0 0	7 3 6	7 6 9	12 6	14 8
9 5 0	7 8 1	7 11 4	12 11	15 2
9 10 0	7 12 8	7 15 11	13 4	15 7
9 15 0	7 17 3	8 0 6	13 9	16 1
10 0 0	8 1 10	8 5 1	14 2	16 6
10 5 0	8 6 5	8 9 8	14 7	17 0
10 10 0	8 11 0	8 14 3	14 11	17 5
10 15 0	8 15 8	8 18 10	15 4	17 11
11 0 0	9 0 3	9 3 5	15 9	18 4
11 5 0	9 4 10	9 8 0	16 2	18 10
11 10 0	9 9 5	9 12 7	16 7	19 3
11 15 0	9 14 0	9 17 2	17 0	19 9
12 0 0	9 18 7	10 1 9	17 5	20 2

The prices for oats and barley given in the foregoing table are for best white oats and for barley of good feeding quality which alone approximate to maize in feeding value. Black oats, for reasons already mentioned, would have a lower maize-parity value.

No allowances have been made in the calculations on which the foregoing table is based in respect of the relatively greater proportion of impurities in the home-grown grain. Neither has any allowance been made for the cost of administration. Moreover, we have disregarded the relative costs of transport of maize and home-grown grain to the mills—costs difficult to assess with any reasonable degree of accuracy owing to the wide distribution of the mills and their varying degrees of accessibility to ports on the one hand and to grain-growing areas on the other. We fully realise, however, that such charges might in practice prove a considerable burden in the case of mills situated in districts in which the farmers are not in the habit of growing grain in any considerable quantity for sale. In such cases, unless the adoption of this scheme so improved the price of grain as to make its production for sale attractive to such farmers, the millers concerned would be obliged to pay heavy charges for the conveyance of their supplies of grain from the areas in which it is now grown for sale.

It should be noted that the charge for mixing (heading (5) in the table given in example 1) would vary with the proportion of home-grown grain used in the admixture: thus, for example, if the percentage were 30 instead of 15, the charge under this head would be halved.

111. Table 6 of the Appendices consists of a graph showing (i) the price of maize delivered ex store in Dublin during the years 1926 to 1930, inclusive, as extracted from the records of one of the largest importers of maize in Saorstát Eireann. This price would be roughly equivalent to the cost of maize delivered on the floor of a mill in Dublin City in cases in which the miller imported the maize direct; (ii) based on the same information, the average price of maize during the period October to December in each of those years; that is to say, the period in which the miller would have had to buy his supplies of home-grown grain had the admixture proposals been in force; (iii) the parity price of home-grown grain in a green state, calculated on that average price; and (iv) the market prices which obtained for oats in those periods, respectively; that is to say, the prices actually received by growers. The market prices of oats are taken from the Trade Journal, and are based on market returns collected all over the country by the Statistics Branch of the Department of Industry and Commerce.

For purposes of comparison we quote in the table below (a) the average price of maize in the 3 months after harvest in each of the years already mentioned; (b) the parity price of best white oats; (c) the actual price of white and black oats as extracted from the Trade Journal and from the records of representative grain merchants and millers whose premises are situated in districts in which oats are grown for sale.

112. It will be recalled that the case made by the advocates of these proposals was that the decline in the tillage area was directly attributable to the unremunerative prices obtainable for grain. It will, however, be seen from the table and graph now referred to that low as was the price of oats during the period under review, yet in three years out of five it was appreciably higher than the price which millers could have afforded to give for best white oats, had these proposals been in force and had millers been required to sell the mixed meal at the price at which they would ordinarily have sold maize meal.

113. Obviously, of course, millers could not have secured their supplies of oats at the maize-parity price; they could not expect to buy large quantities of oats, or of any other commodity, at prices considerably below market value; and hence, unless the average price of maize during the year rose to such a figure as to equate the actual and the maize-parity values of oats, millers would have been compelled by circumstances to charge more for the mixed meal than the price at which they could have sold maize meal and the interests of consumers would have been so far prejudiced.

114. In practice, however, it is virtually certain that the consumers' position would have been still worse.

115. It will be seen on reference to the tables in the Appendices that the average total production of oats in this country amounts to 13,000,000 cwt.; that of this quantity only about 2,500,000 cwt. are sold off the farm, the bulk of which is consumed in this country; and that the average net exports of oats during the 5 crop years ended 1930, inclusive, was only 775,604 cwt.

116. To provide a 15 per cent. admixture for the quantity of maize meal normally consumed in Saorstát Éireann, say 8,000,000 cwt. annually, would require 1,290,000 cwt. of green oats (the equivalent of 1,200,000 cwt. dried oats). It is fairly certain that the market price of oats in this country could not remain unaffected by the creation of a new demand for a quantity of that grain amounting to more than half the entire quantity normally marketed, and almost double the net average quantity annually exported, especially as the demand would be urged by the necessity of complying with a compulsory legislative requirement.

117. We have, of course, no means at our disposal of assessing the extent of that effect, but we are satisfied that an increase of £1 per ton would be a conservative estimate of the resultant increase in the price of oats.

118. On that assumption we find that in the period under review the growers of the oats would have annually received

£64,500 extra for the quantity of grain required for the admixture purposes alone. We are not at the moment concerned with the effect of this new demand and its possible reactions on the interests of the other consumers who are at present buyers of oats, such as consumers of oatmeal, feeders of town horses, and others, whose interests could not be put aside as unimportant. We are considering the question solely from the point of view of the users of maize meal on the one side and the growers of cereals on the other. It is clear that the £64,500 which the growers would have received would have been paid by the consumers, but this is not all; the consumers would in practice have paid the full difference between the actual and the maize-parity prices of the oats.

119. From the table and graph it will be seen that in the year 1926-1927 (October to September) the maize-parity price of oats after harvest was 5/9 per cwt., and the actual price 7/-. Adding 1/- to the latter as the estimated effect on the price of the new demand for oats, the grain for admixture purposes would have cost 2/3 per cwt. more than the maize-parity value. During that year the average price of maize did not differ appreciably from the average price payable during the period October to December, on which we have calculated the parity value of oats. It follows, therefore, that the whole cost represented by the difference in value of maize and oats would have fallen on the consumers; that is to say, the cost of 1,290,000 cwts. of oats at 2/3 per cwt., or 64,500 tons at £2 5s. 0d. In other words, the consumers would have borne a loss of over £145,000 as against a gain to the growers amounting to £64,500.

120. In the year 1927-28, the average price of maize after the cereal harvest in Saorstát Éireann was 8/6 per cwt., the parity price of oats was 6/9 per cwt., and the actual price of oats was 7/6 per cwt. During that year the average price of maize was around 9/8 per cwt., and based on that figure the parity value of oats would have been 7/9 per cwt. As stated, however, the actual price when the year's supplies would have been obtained was 7/6 per cwt., and if as before 1/- be added to this, to represent the increase in price due to the new demand, the price which millers would have had to pay for oats would have been 9d. per cwt. (or 15/- per ton) in excess of the parity value. Hence under the admixture scheme consumers that year would have lost over £48,000 as compared with the cost of ordinary maize meal.

121. In the year 1928-29 the average price of maize, after the cereal harvest in Saorstát Éireann, was 9/9 per cwt., and the parity value of oats 7/10 per cwt., while the actual price of oats was 7/6 per cwt. During that year the average price of maize was 9/6 per cwt. and the parity value of oats, therefore, 7/7 per cwt. Adding, as before, 1/- per cwt. to the actual price of oats after harvest, the actual price of the oats for that year's requirements would have been

8/6 per cwt. as against a parity value of 7/7 per cwt. and the loss to consumers would have been over £59,000.

122. In the year 1929-30, the average price of maize after harvest was 7/11 per cwt., and the parity value of oats 6/2 per cwt., while the actual price of oats was about 6/- per cwt. During that year, the average price of maize was 6/8 per cwt., and the parity value of oats, therefore, about 5/- per cwt. Adding as before 1/- to the actual price of oats after harvest, we get a price of 7/- per cwt. as against a parity value of 5/- per cwt. In that year, therefore, the loss to consumers would have amounted to over £129,000.

123. It will be seen, therefore, that had the proposals of the Irish Grain Growers' Association been in operation during the years 1926-27 to 1929-30 inclusive, growers would have received in the aggregate £258,000 extra for their grain sold for admixture purposes; while consumers would have lost over £380,000; and nevertheless the prices which would have been paid for oats during 3 of these 4 years would have been only a little over 1/- per stone. From the evidence given by the witnesses on behalf of the Irish Grain Growers' Association we would not feel justified in concluding that that price would have proved so attractive to growers as to have led to any considerable extension of tillage. In the fourth year when consumers would have had to find over £129,000 extra to pay for the mixed meal, in comparison with what they would have had to pay for ordinary maize meal, the growers, on their own evidence, would not have received a remunerative price for their corn.

124. In paragraphs 111 to 123 we have treated the question entirely on the basis of an admixture of maize and oats. The proposals were, however, originally designed not only to afford an outlet and to secure a better price for the barley produced in excess of brewers' and distillers' requirements, but also to afford an alternative market and a better price for barley generally. The requirements of maltsters, brewers and distillers have of recent years been fairly constant; and it would appear that, of the produce of the 1926, 1927 and 1928 Saorstát barley crops grown for sale, the proportions exported represented the quantities which were surplus to those requirements and to the normal purchases of home-grown barley made by farmers; also that there was very little surplus barley from the 1929 and 1930 crops after the needs of the maltsters, brewers and distillers had been met. In any event, it is obvious that the demand in any of the last five or six years for the quantity of barley which would have been required for admixture purposes, i.e., 1,290,000 cwt. could have been only partly met by the so-called surplus and that, therefore, the demand for this quantity would have resulted in a greatly increased price. Indeed, we are satisfied that the price would have advanced in greater degree than we have estimated in the case of oats. Moreover, barley is ordinarily a

dearer grain than oats. From these considerations it follows that had barley been used for admixture purposes, the position exemplified in paragraphs 115 to 123 would have been still worse.

125. It is clear from the foregoing that the contention of the Irish Grain Growers' Association that the mixed meal could be produced at the same price as maize meal would have been falsified in practice; while their original anticipation that the adoption of their proposals would lead to an increase in the price of home-grown grain would have proved to have been well-founded.

PART VIII.

SUMMARY OF CONCLUSIONS.

126. From the consideration we have given to the evidence placed before us by the representatives of all the interests affected by the proposals—by the advocates and the opponents, and by the expert witnesses, both millers and others, who appeared in a neutral capacity—and from the results of our independent investigations in matters not fully dealt with by any of the witnesses, we have come to the following general conclusions upon the questions referred to us for inquiry and report:—

(i) The real impetus behind the demand for the adoption of the admixture proposals came from the barley-growing districts, and had its origin in the difficulty of selling the surplus production of that grain consequent upon the decline in the demand for barley on the part of the brewing and distilling industries.

(ii) Despite the fact that the oat has been always by far the largest cereal crop grown in this country—the area devoted to it being more than five times that devoted to the cereal crop next in importance, namely, barley—yet oat growers as such, constituting as they do the vast majority of the grain growers of the country, have made no serious demand for the adoption of the admixture proposals as a means of providing them with a market for their produce.

(iii) It is impracticable to suggest any scheme for the administration of a law based on those admixture proposals which, while effectively safeguarding the interests of the consumer, would not, from its necessarily elaborate character, impose a burden of cost on the country altogether disproportionate to the end to be attained. Moreover, any such scheme would in practice be a source of inconvenience, if not irritation, to interests other than those engaged either in tillage or the feeding of livestock, or in both, owing to the restrictions it would be necessary to impose on the importation of cereals and cereal products, and to the extent to which it would be necessary to meddle in the affairs of those concerns for the purpose of ascertaining the volume,

and the ultimate purpose of their requirements in imported cereals and cereal products, so as to ensure the proper working of a system of admitting such commodities under licence.

[Note.—Maize, strictly speaking, has a rather higher feeding value than home-grown grain. The difference, however, is unimportant, and for practical purposes we assume that maize and best quality home-grown grain are equal in this respect and, therefore that if millers used only the latter for admixture purposes, consumers could be assured that under these proposals, they could obtain a feeding stuff equal to maize meal. We have, however, pointed out in reviewing the evidence that every crop of cereals contains a proportion of inferior grain and of small pickles, tailings, etc., varying in quantity with the variety of seed sown, the season, the quality of the land, the relative effectiveness of the methods of cultivation employed, and the conditions under which the crop was harvested. Small grain, owing to its undue proportion of husk to kernel, is much inferior to fully developed grain in feeding value. Again, many of the millers engaged in the manufacture of maize meal also carry on the kindred industries of flour and oatmeal milling, in both of which processes considerable quantities of offals are thrown off. Some of these offals are of much less feeding value than maize meal, others are of very little feeding value. For example, the husk of the oat, discarded in the manufacture of oatmeal is composed largely of fibre and possesses very little value as a foodstuff. These husks accumulate in large quantities and millers find it increasingly difficult to dispose of them without loss. The dehussing of the oat releases another offal—the floury lining between husk and kernel—which also accumulates in quantity, and which, with other mill refuse, is usually sold at a lower price than maize meal.

We are satisfied from the evidence of the expert witnesses on this subject, and from like evidence given in cases reported in Great Britain in relation to prosecutions in connection with the adulteration of barley meal, that if the admixture proposals were in force any system of supervision based upon the taking and analysing of samples would prove ineffective to safeguard the interests of consumers against the substitution of any of these offals for best grain, i.e., for grain equivalent in feeding value to maize, and we are convinced that this end could only be attained by close supervision of the mills at very great expense.

We are not unmindful of the attitude adopted by representatives of the Irish Grain Growers' Association on this aspect of the question. That attitude was frankly one of reliance upon the honesty of manufacturers and their concern for the reputation of their products. We consider, however, that the Legislature could not ignore the facilities for adulteration which would here exist, and the temptation there would be to use these facilities as an outlet for offals otherwise difficult to dispose of at a profit; nor could it be argued that malpractices of this kind are of such rare occurrence in connection with the manufacture of compound feeding stuffs that their liability to happen in this case might be safely ignored. On the contrary, it is the general experience that such irregularities have been only too common, and, indeed, in the manufacture of foods in which the detection of adulterants was a work of relative simplicity.]

(iv) The adoption of the proposals would impose serious hardship on considerable numbers of people in certain parts of the country—small farmers, cottiers, labourers and others—of whose daily diet, maize meal, a wholesome and relatively cheap food, forms an important part.

[Note.—We had ample evidence that it is the normal practice in such households to have a sack of maize meal out of which supplies are drawn at one time for the food of the family and at another for the feeding of the poultry or other live stock kept on the holding. One miller indeed assured us that a very large percentage of his output of maize meal found its way to such homes. The proposed blend of meals, containing, as it would the husks of the oats or barley, would, of course, be unsuitable for human food.]

The representative of the Irish Grain Growers' Association contended that the present practice was unhygienic, and that it would be in the interests of the general health of such families, if they were obliged to purchase and keep separately the food required for their own use.

No evidence was put before us to sustain the argument that the existing practice constituted a danger to health, nor do we see any reason why it should do so, or why it should be impracticable in the ordinary small dwelling so to store a sack of meal as to protect it from contamination. We are not satisfied, therefore, that any reasonable grounds exist which would warrant the introduction of a scheme which would prevent these families from obtaining maize meal for their own food

except in separate packages at an increased cost which they could ill afford to pay.]

(v) In other respects the admixture proposals do not possess the advantages claimed for them by their advocates—we are satisfied that a mixed meal composed of 85 per cent. of maize and 15 per cent of home-grown grain could not be produced at the cost of maize meal.

[Note.—Indeed we have shown that had a legislative requirement based on those lines been in force during the four years 1926-7 to 1929-30, those who use maize meal as a feeding stuff for the production of poultry, eggs, bacon, pork, and dairy products would have been put to very serious loss. Furthermore the interests of another class not directly represented before us would have been adversely affected by the increased price of oats, namely, consumers of oat-meal, and all those who buy oats for the feeding of horses. Nevertheless having regard to the evidence given before us by grain growers who advocated the adoption of the proposals, we should not be justified in concluding that the increased returns received by growers in three of those years would have constituted an inducement to them to extend the area which they now devote to the growing of corn; and we are fully satisfied that the prices which they could have obtained in the fourth year would not have done so.]

127. We have not hitherto alluded to the probable effects of the adoption of the admixture proposals in the event of the proportion of home grown grain to be mixed with maize being fixed at any higher figure than 15 per cent. We have, however, worked out the tables, showing how the parity values of maize and home-grown grain are arrived at, in such a way that they may be used to show the effect of any percentage of admixture up to 100. The only alterations necessary in varying the percentages would be under heading No. 5 (cost of mixing) with the consequent changes in the gross and net parity values. As, however, the limits within which the figures under heading No. 5 can vary are very narrow it is manifest that whatever percentage be used, the maize-parity value of home-grown grain would always be well below the actual price of maize.

128. It is obvious, therefore, that however the percentage be varied the result is certain to be either (i) that the price of grain to the grower would not, unless there was a considerable advance in the price of maize, reach the level which advocates of the proposals testified to be the minimum necessary to render grain growing remunerative to growers; or (ii) that the cost of the feeding-stuff to the feeder would be increased to such a level as

would so seriously handicap him in his already keen competition on the world's markets as to threaten the existence of his own industry. In the latter event the demand for meal would quickly decline, and the last state of all parties would be worse than the first.

129. Upon all these grounds we are satisfied that it would not be in the national interest to enact that all maize meal and maize products before being offered for sale in Saorstát Eireann should be mixed with a definite, or any, percentage of home-grown grain, and we, accordingly, recommend that the proposals of the Irish Grain Growers' Association be not adopted.

130. Mr. J. R. O'Donnell acted as Secretary to the Tribunal throughout the inquiry. His thorough knowledge not only of the main question but also of the many allied problems raised proved invaluable to us, and his wide administrative experience greatly facilitated our work. We desire to place on record our sincere appreciation of the services rendered by him:

J. J. McELLIGOTT (*Chairman*).

S. B. O FAOILEACHAIN.

J. H. HINCHCLIFF.

J. R. O'DONNELL,

Secretary.

3rd July, 1931.

APPENDICES.

1. TABLE I.—Imports into, Re-exports from and Net Imports into, Saorstát Eireann, of Maize and Maize Meal with names of countries from which imported, during the years 1926 to 1930, inclusive.
2. TABLE II.—Acreage and Produce of Oats, Barley, Wheat and Rye crops in Saorstát Eireann yearly from 1926 to 1930, inclusive.
3. TABLE III.—Imports into, and Exports from Saorstát Eireann, of Oats, Barley, Malt and Wheat during the calendar years 1926 to 1930, inclusive.
4. TABLE IV.—Imports into, and Exports from, Saorstát Eireann, of Oats and Barley, during the crop years 1925-6 to 1929-30, inclusive.
5. TABLE V.—Output and disposal of Oats, Barley, Wheat and Rye, produced in Saorstát Eireann in the crop year 1926-7.
6. GRAPH.—Showing prices of Maize and Oats during years 1926-7, 1927-8, 1928-9 and 1929-30, with average prices of each, during October to December each year, and the Maize-parity price of Oats at same periods.
7. Note relative to paragraph 83 of the Report.

TABLE I.

IMPORTS, RE-EXPORTS AND NET IMPORTS OF MAIZE AND MAIZE MEAL, DURING THE YEARS 1926-1930, INCLUSIVE.

MAIZE.											
Country whence consigned	1926		1927		1928		1929		1930		
	cwt.	£	cwt.	£	cwt.	£	cwt.	£	cwt.	£	
Great Britain ...	678,171	267,175	642,478	247,587	840,411	404,081	704,480	318,603	998,688	317,498	
Northern Ireland ...	721,505	286,087	845,569	316,874	596,395	292,692	929,030	426,467	966,911	316,692	
Argentina ...	4,168,779	1,559,736	6,068,093	2,227,853	6,127,496	2,773,908	5,285,808	2,317,083	4,203,319	1,220,319	
South Africa ...	297,742	123,973	—	—	80,829	40,549	—	—	283,980	76,547	
Roumania ...	442,119	162,719	—	—	—	—	—	—	926,876	255,961	
Bulgaria ...	72,111	28,844	—	—	—	—	144,021	65,902	—	—	
U. S. A. ...	68,571	27,050	—	—	—	—	21,685	9,170	—	—	
Belgium ...	17,020	6,645	—	—	44,750	22,472	47,065	21,615	—	—	
Canada ...	—	—	—	—	—	—	—	—	—	—	
TOTAL ...	6,466,018	2,462,229	7,556,140	2,792,314	7,689,881	3,533,702	7,132,089	3,158,840	7,379,774	2,187,017	
Re-Exports ...	36,409	13,852	3,265	530	26,046	12,099	25,859	8,787	25,204	8,599	
Net Imports ...	6,429,609	2,448,377	7,552,875	2,791,784	7,663,835	3,521,603	7,106,230	3,150,053	7,354,570	2,178,418	

MAIZE MEAL.											
Country whence consigned	1926		1927		1928		1929		1930		
	cwt.	£	cwt.	£	cwt.	£	cwt.	£	cwt.	£	
Great Britain ...	57,732	28,080	19,183	8,777	19,237	10,463	10,294	5,864	9,971	4,344	
Northern Ireland ...	889,147	404,814	987,350	441,733	868,719	470,223	877,483	453,554	1,091,209	409,188	
Belgium ...	5,980	2,867	1,180	580	—	—	—	—	—	—	
TOTAL ...	952,859	435,761	1,007,713	451,090	887,956	480,686	887,777	459,418	1,101,180	413,532	
Re-Exports ...	51,551	23,923	29,227	13,415	25,905	14,915	20,145	10,566	20,136	7,962	
Net Imports ...	901,308	411,838	978,486	437,675	862,051	465,771	867,632	448,852	1,081,044	405,570	

TABLE II.

STATEMENT, PREPARED BY DEPARTMENT OF INDUSTRY AND COMMERCE (STATISTICS BRANCH), SHOWING THE ACREAGE AND PRODUCE OF OATS, BARLEY, WHEAT AND RYE, IN EACH YEAR FROM 1926 TO 1930, INCLUSIVE.

EXTENT IN STATUTE ACRES.

Year				Oats	Barley	Wheat	Rye
1926	...	...	...	647,407	141,009	29,386	6,645
1927	...	...	...	644,610	120,796	34,466	6,055
1928	...	...	...	648,615	129,092	31,350	4,908
1929	...	...	...	666,233	117,591	28,583	4,100
1930	...	...	...	643,910	116,195	26,740	3,559

YIELD PER ACRE IN CWT.

Year				Oats	Barley	Wheat	Rye
1926	...	...	...	19.7	20.3	21.0	15.7
1927	...	...	...	20.7	22.3	22.1	15.0
1928	...	...	...	19.7	20.4	20.3	15.3
1929	...	...	...	20.7	21.7	22.2	15.4
1930	...	...	...	19.6	20.3	21.8	16.5

TOTAL PRODUCE IN TONS.

Year				Oats	Barley	Wheat	Rye
1926	...	...	...	638,729	143,400	30,926	5,205
1927	...	...	...	667,643	134,886	38,059	4,544
1928	...	...	...	637,291	131,697	31,763	3,761
1929	...	...	...	689,385	127,720	31,718	3,159
1930	...	...	...	632,146	118,215	29,260	2,944
Average	...	...	...	653,039	131,184	32,345	3,923

TABLE III.

STATEMENT PREPARED BY THE DEPARTMENT OF INDUSTRY AND COMMERCE (STATISTICS BRANCH) SHOWING THE IMPORTS INTO, AND THE EXPORTS FROM, SAORSTÁT ÉIREANN, OF OATS, BARLEY, MALT AND WHEAT, EXCEPT OATS, BARLEY AND WHEAT DESCRIBED AS SEED, DURING THE YEARS 1926-30, inclusive. N.B.—THERE WERE NEITHER IMPORTS NOR EXPORTS OF RYE IN ANY OF THESE YEARS.

OATS.

	1926		1927		1928		1929		1930	
	cwt.	value £	cwt.	value £	cwt.	value £	cwt.	value £	cwt.	value £
Imports ...	268,493	139,729	114,871	49,691	65,447	34,223	78,341	35,365	192,377	56,510
Exports:—										
White ...	174,040	68,805	687,114	297,733	483,277	218,857	333,848	126,068	103,470	30,630
Black ...	402,545	142,312	740,009	284,393	514,206	220,661	319,767	114,096	272,673	71,161
Total Exports ...	576,585	211,117	1,427,213	582,323	997,483	439,518	653,615	240,164	376,143	101,791
Net Exports ...	308,092	71,388	1,312,342	532,632	932,036	405,295	575,374	204,799	183,766	45,281

BARLEY.

	1926		1927		1928		1929		1930	
	cwt.	value £	cwt.	value £	cwt.	value £	cwt.	value £	cwt.	value £
Imports ...	116,044	46,701	214,694	110,225	233,428	120,259	458,149	220,527	301,739	107,722
Exports ...	388,099	168,065	264,488	142,223	193,266	93,145	53,643	24,136	17,196	6,939
Net Imports ...	—	—	—	—	40,162	27,114	—	—	284,543	100,783
Net Exports ...	272,055	121,364	49,794	31,998	—	—	—	—	—	—

TABLE III.—(Continued).

MALT.

	1926		1927		1928		1929		1930	
	cwt.	value £	cwt.	value £	cwt.	value £	cwt.	value £	cwt.	value £
Imports ...	228,262	251,880	150,270	147,289	143,019	138,122	137,010	119,162	322,491	247,370
Exports ...	26,208	27,112	28,338	29,192	22,741	24,596	22,988	22,205	19,854	16,765
Net Imports ...	202,054	224,778	121,932	118,097	120,278	113,526	114,022	96,957	302,637	230,605

WHEAT.

	1926		1927		1928		1929		1930	
	cwt.	value £	cwt.	value £	cwt.	value £	cwt.	value £	cwt.	value £
Imports ...	5,414,783	3,585,681	6,373,136	4,011,116	4,899,600	2,912,809	5,865,578	3,186,842	5,316,189	2,343,457
Exports ...	693	456	117	81	411	234	283	141	—	—
Net Imports ...	5,414,090	3,585,225	6,373,019	4,011,035	4,899,189	2,912,575	5,865,295	3,186,701	5,316,189	2,343,457

TABLE IV.

IMPORTS AND EXPORTS OF OATS AND BARLEY (OTHER THAN SEED) DURING EACH OF THE CROP YEARS 1925-6 TO 1929-30 —(PERIOD 1ST OCTOBER TO 30TH SEPTEMBER).

		OATS.				
		1925-26	1926-27	1927-28	1928-29	1929-30
		cwt.	cwt.	cwt.	cwt.	cwt.
Imports	... ..	253,515	132,764	59,680	84,290	111,459
Exports	... ..	862,493	887,010	1,472,876	718,913	578,439
Net Exports	...	608,978	754,246	1,413,196	634,623	466,980

		BARLEY.				
		1925-26	1926-27	1927-28	1928-29	1929-30
		cwt.	cwt.	cwt.	cwt.	cwt.
Imports	... ..	276,977	215,370	233,172	457,974	298,295
Exports	... ..	22,546	426,635	262,641	186,327	22,841
Net Imports	...	254,431	—	—	271,647	275,454
Net Exports	...	—	211,265	29,469	—	—

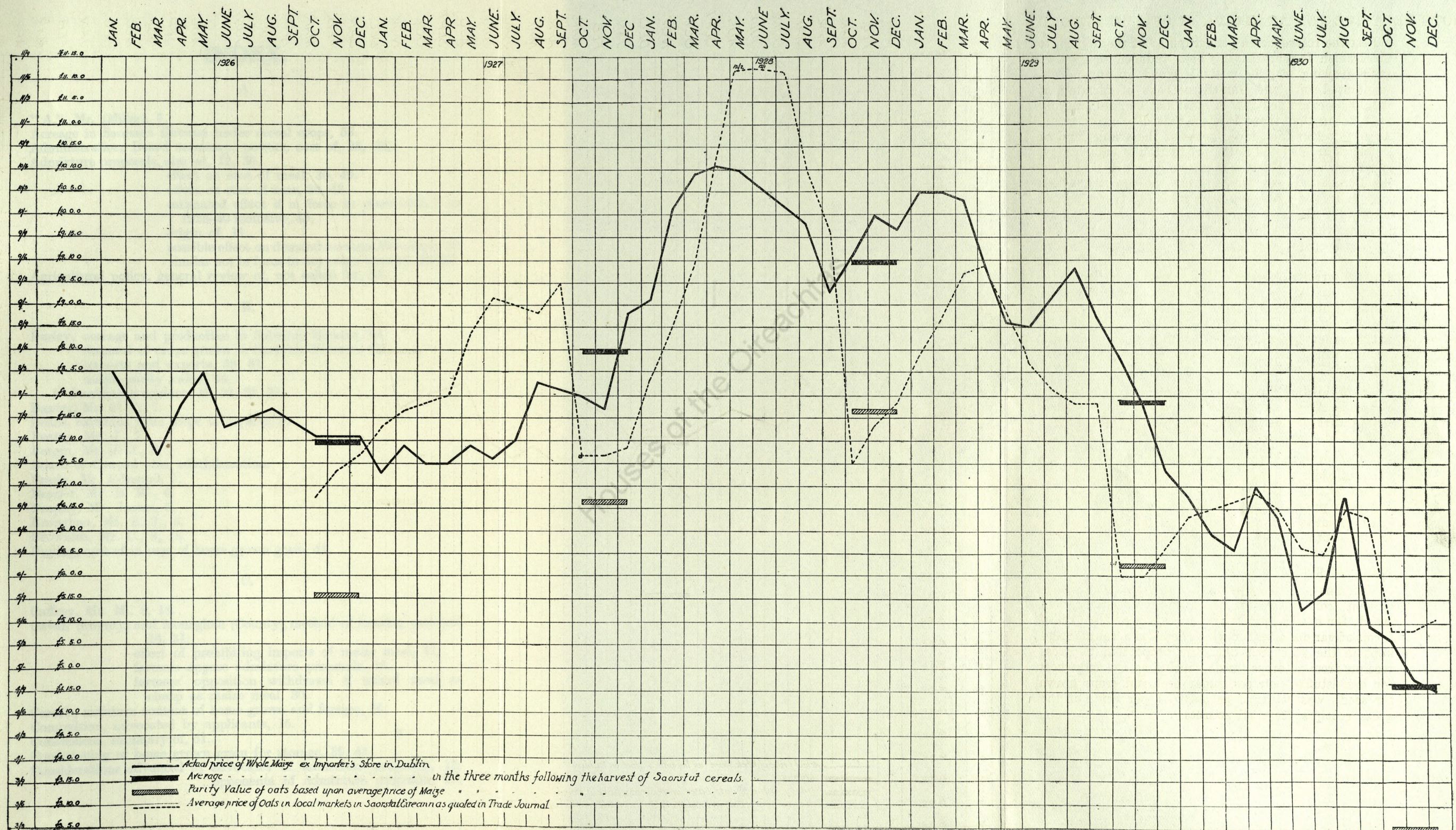
TABLE V.

TABLE EXTRACTED FROM "THE AGRICULTURAL OUTPUT OF SAORSTÁT EIREANN, 1926-7," COMPILED BY THE DEPARTMENT OF INDUSTRY AND COMMERCE (STATISTICS BRANCH), SHOWING THE PRODUCTION, OUTPUT AND MANNER OF DISPOSAL OF OATS, BARLEY, WHEAT AND RYE CROPS, PRODUCED IN SAORSTÁT EIREANN IN THE CROP YEAR 1926.

Crop		Estimated production cwt.	Sold by the Agricultural community or consumed in farm households		Used for further Agricultural Production	
			Consumed in Saorstát Eireann	Exported	As seed	As food for live stock on farm
Oats	... ..	12,775,000	1,662,000	891,000	1,386,000	8,836,000
Barley	... ..	2,868,000	657,000	1,599,000	218,000	394,000
Wheat	... ..	619,000	232,000	1,000	73,000	313,000
Rye	... ..	104,000	—	—	12,000	92,000

NOTE.—Estimates of disposal are based on final consumption. For example, barley exported includes barley exported as beer and spirits, as well as barley exported as grain.

TABLE 6.



NOTE RELATIVE TO PARAGRAPH 83 OF THE REPORT.

Lest the reference, in paragraph 83 of the Report, to the Danish farmers having been induced to give up grain-growing may be misunderstood by anyone unacquainted with the Danish methods of farming, it should be explained that it must not be read literally as meaning that those farmers ceased to grow grain. As a matter of fact, large areas of the arable land of Denmark are devoted to the production of oats, barley, rye and wheat. What is meant to be conveyed is that the Danish farmers turned from the practice which they had followed up to that time of growing grain mainly for sale and export and adopted that of dairy farming with the kindred industries of pig-rearing and poultry-keeping, and made grain-growing subsidiary to these as a means principally of producing feeding stuffs for their livestock. Thus, instead of having an average annual net export of one and one-half million pounds worth of corn, meal and flour, as they had in the quinquennial period—1876 to 1880, they had an average net import of ten and one-quarter million pounds worth of those commodities annually in the period 1925-1929.

The following extracts are from "A Short Survey of Danish Agriculture," published by the Royal Danish Agricultural Society (Nielsen and Lydicke, Copenhagen, 1913), page 32:—

"Danish Agriculture is strongly impressed by the existing highly-developed dairy industry with an extended animal husbandry, so that the cultivation of the soil aims pre-eminently at producing forage."
 "The relatively low grain prices, which obtain on account of the duty free importation of grain products and feedstuffs, prevent the sale and encourage the feeding of the grain crops."

That this is still the general practice in Denmark is evident from the results of an inquiry recently instituted; for it was found that, in respect of 200 typical farms of various sizes for which detailed accounts were kept in the year 1929-1930, the proportion of gross receipts from all crops (grain—including rye and wheat for breadstuffs—potatoes, sugar beet and crops grown for seed) was returned as only 7.1 per cent. of the gross receipts from all sources.

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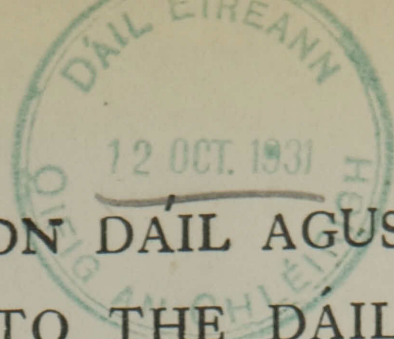
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PAIPEIRI ATA LE TIOLACA DON DAIL AGUS DON tSEANAD.
PAPERS TO BE PRESENTED TO THE DAIL AND SEANAD.

1. An Roinn atá ag déanamh an tíolactha

Department making presentation ..

Executive Council

539

2. Teideal an Pháipéir atá le tíolaca ..

Title of Paper to be presented ..

Grain Inquiry Tribunal - Report on
proposal that Maize Meal and Maize
Products for sale in Saorstát Eireann
should contain a definite proportion
of Home Grown Grain.

3. Más do réir Reachta atá an tíolaca á
dhéanamh, luaidhtear Teideal agus
Alt an Achta a údarúíonn an tíolaca..

If presented pursuant to Statute, state
authority for presentation, giving Title
and Section of Act

Not presented pursuant to Statute

4. Más gá é bheith ar taisbeáint ar an
mBord ar feadh tréimhse áirithe,
luaidhtear:

If required to be on the Table for a
specified period, state:

No.

(1) An Tréimhse

Period

(2) Ce'ca laetheanta den tsiosón í no
laetheanta 'na mbeidh suidheanna
ann

Whether days of session or sitting
days

5. An gá tairisgint ag lorg aontuithe gach
Tighe?

If motion of approval by each House
necessary

No

Sighnithe

Signed

Ceann na Roinne.
Head of Department.

12th October, 1931.