

Forage Maize Varieties

Irish Recommended List 2010



**The Department of
Agriculture, Fisheries and Food
An Roinn Talmhaíochta, Iascaigh agus Bia**

CROP VARIETY EVALUATION DIVISION

CONTENTS

	Page
Maize Growing in Ireland (including Table 1).	2
Introduction.	2
Variety Testing Procedure.	3
Types of Recommendation.	3
Laboratory Analysis	3
 <u>Recommended List (2010):</u>	
Table 2. Varieties suitable for growing without plastic cover.	4
Characteristics of varieties suitable for growing without plastic cover.	5
Table 3: Varieties suitable for growing with plastic cover.	6
Characteristics of varieties suitable for growing with plastic cover.	7

IMPORTANT NOTICE

The Department of Agriculture, Fisheries and Food (DAFF) has taken all due care in evaluating the performance of the listed varieties for yield, quality, disease resistance and the important agronomic characters over a wide range of soils and environmental conditions, for a minimum period of 3 years. The Department cannot, however, accept responsibility for any loss or inconvenience arising from any future variation in absolute or relative varietal performance.

ACKNOWLEDGEMENTS

The Department of Agriculture, Fisheries and Food wishes to acknowledge the help and co-operation received from the Maize Growers Association Ireland Ltd, Agricultural advisors with Teagasc and the growers on whose land the trials were conducted.

Maize Growing in Ireland

Forage maize grows best in areas of Ireland with a long growing season, freedom from late spring frosts and early winter frosts, high overall temperatures and maximum sunlight. Fields chosen for maize production should be south facing where possible in order to maximise sunlight and temperatures over the growing season. Elevated and exposed sites are generally unsuitable. Maize needs good soil and is not tolerant of soil compaction, so care must be taken to avoid this problem. Very light sandy soils will give reduced yields. Growing on very heavy clay soils, particularly if they have underlying poor drainage, can delay sowing date and make harvesting difficult as well as causing damage to the soil structure.

In Ireland, maize is sown in spring and is grown under two production systems; 1. 'without plastic cover' (*Uncovered*), and 2. 'With Plastic Cover'.

1. Uncovered

It is important that maize is sown early enough to benefit from a sufficiently long growing season, but it should not be sown too early because maize seed / young plants need a soil temperature of at least 8 °C to grow. This is higher than for most other crops. Long cold periods at the germination stage can cause many of the seeds / plants to die or result in weak plants, giving reduced yields. Crops should not be sown until the soil temperature has reached a minimum of about 8 °C and it is expected not to fall below this level for any significant period in the following few weeks.

Sowing dates should be decided on the basis of the usual climate and the experience gained in the area over the years. The average sowing and harvesting dates for the Department of Agriculture, Fisheries and Food (DAFF) trials (2007 to 2009) are presented in Table 1.

Table 1: Average Sowing and Harvesting Dates for DAFF trials 2007 to 2009

	Uncovered Trials	Plastic Covered Trials
Sowing Date	30 th April	20 th April
Harvest Date	30 th October	13 th October

2. With Plastic Cover

The plastic, in the form of a thin sheet spread over two crop rows, is applied to the soil surface at the time of sowing. The plastic cover allows sowing to be carried out earlier than for uncovered crops, because the plastic covering quickly brings about a significant increase in the temperature of the air and soil beneath it. The average sowing and harvesting dates for the trials are presented in Table 1.

Introduction

This leaflet lists the forage maize varieties that are considered most suitable for growing under Irish conditions. Varieties suitable for growing without and with plastic cover are presented in separate Tables.

The varieties included on the recommended list have completed a minimum of three years in the Department of Agriculture, Fisheries and Food's trials on farms situated in various

geographic locations considered suitable for maize production. The trials are grown within commercial maize crops and in accordance with good farming practice.

The uncovered trials were located in Cork, Waterford, South Kilkenny, Tipperary, Meath and Kildare during the period 2007 to 2009. The yearly trial results over the three years are combined in a single ***without plastic cover*** evaluation.

The plastic covered trials were located in Cork, South Kilkenny, Meath and Kildare during the period 2007 to 2009. The yearly trial results over the three years are combined in a single ***with plastic cover*** evaluation.

Variety Testing Procedure

New varieties are submitted annually to the Department from Irish Agents acting on behalf of International plant breeders or directly from these breeders. These varieties enter combined National List/ Recommended List trials. Trials grown ***without plastic cover*** are comprised of 20 varieties and are grown at up to six centres per year, while trials ***with plastic cover*** are comprised of 13 varieties and are grown at up to four centres. The varieties are assessed as to their suitability under Irish conditions for dry matter yield, dry matter content, starch content and other traits.

After completing 3 years in official trials, new varieties showing superior performance are given positive Value for Cultivation and Use (V.C.U.) status. Those varieties can be National Listed by the breeder provided they have been awarded a DUS certificate, thus allowing them to be considered for Provisional Recommendation. If these Provisionally Recommended varieties continue to perform well, they may be upgraded to Full Recommendation status after 1, 2 or occasionally 3 years of further trialling. Provisional recommendation is possible for a maximum of three years.

Growers should give preference to the varieties listed unless there is compelling evidence that other varieties are more suited to their specific conditions or requirements.

Throughout the trial programme, efforts are being made to select better and earlier maturing varieties that will improve the yield and quality of the crop, as well as allowing it to be successfully grown in areas that were previously considered climatically marginal for forage maize production.

Types of Recommendation:

Varieties appearing on the list for the first time are **Provisionally Recommended (PR)**, and have completed three years in combined National list/ Recommended list (NL/RL) trials. The eventual status of these varieties is determined by their subsequent level of performance in ongoing NL/RL trials; fully **Recommended (R)** classification may be deemed to be merited after a further one, two or exceptionally three years, or alternatively they may be removed from the list at any stage.

Laboratory Analysis:

The Department of Agriculture, Fisheries and Food take whole-crop samples from each trial plot at harvesting and dry them to determine the dry matter content. These dried samples are analysed by FBA Laboratories Ltd., Cappoquin, Co. Waterford who determine the starch content. Starch content is expressed as a percentage of the dry matter.

Table 2: Recommended List (2010) of Forage Maize varieties suitable for growing without plastic cover.

Actual yield data is shown for the mean of the control varieties, and the relative yield data (as % of controls) is shown for all varieties. The data is based on results of 14 trials (4 to 5 trials x 3 years) carried out over three years in the period 2007 to 2009.

	Uncovered (Without Plastic Cover)					
	Yield of Dry Matter	Dry Matter content	Starch content	Lodging Resistance score (1 - 9) (9 = best, 1 = worst).	Plant Height (metres)	Year first Recomm -ended
Controls* (actual)	13.9t/ha	30.5%	21.8%	7.6	1.99	---
Acclaim (PR-1)	93	112	105	7.1	1.86	2010
Andante (R)	99	100	101	7.4	2.14	2003
Avenir (R)	99	103	99	7.7	1.87	2000
Beethoven (PR-1)	112	93	98	6.0	2.14	2010
Fergus (R)	107	99	102	7.2	2.08	2008
Katy (PR-1)	105	94	101	6.7	2.03	2010
Loft (R)	(98)	(95)	(99)	(7.9)	(1.91)	1999
Nimrod (R)	102	97	96	6.7	2.14	2008

* The Control varieties were Andante, Avenir, Loft in 2007 and 2008 trials and Andante, Avenir and Fergus in the 2009 trials.

(R): Recommended for general use. (PR): Provisionally Recommended (The number after the PR, indicates the number of years provisionally recommended).

The figures for Loft are surrounded by brackets, indicating that the variety was not sown in the 2009 trials, and that data for the year 2009 was calculated having been derived from 2006-2008 trials average, and converted based on the 2009 control varieties.

Yield and quality data shown for Uncovered trials (Table 2) and Plastic covered trials (Table 3) are not directly comparable, because the trials were grown in different locations and under different conditions.

Characteristics of the Varieties in Table 2, when Grown Without Plastic Cover

- Acclaim (PR-1):** **Uncovered:** New to the list with a provisional recommendation. Yield is moderate. Highest dry matter and starch content. Very early maturing variety. Bred by Limagrain Advanta Nederland BV, The Netherlands.
- Andante (R):** **Uncovered:** Good yielding variety. Good dry matter content. Very good starch content. Early maturing. A tall variety with good lodging resistance. Suitable over a wide range of growing conditions. Bred by Limagrain Advanta Nederland BV, The Netherlands.
- Avenir (R):** **Uncovered:** Good yielding variety. Very good dry matter content. Good starch content. Early maturing variety that dries down quickly at harvest time. Consistent performer and a popular variety. Suitable over a wide range of growing conditions. Very good lodging resistance. Bred by Syngenta, France.
- Beethoven (PR-1):** **Uncovered:** New to the list with a provisional recommendation. Highest yielding variety. Moderate dry matter content. Good starch content. A tall variety with moderate lodging resistance. Bred by Limagrain Advanta Nederland BV, The Netherlands.
- Fergus (R):** **Uncovered:** Very high yielding variety. Good dry matter content. Very good starch content. Early maturing. Suitable over a wide range of growing conditions. Bred by Maisadour, France.
- Katy (PR-1):** **Uncovered:** New to the list with a provisional recommendation. High yielding variety. Moderate dry matter content. Good starch content. Bred by KWS, Germany
- Loft (R):** **Uncovered:** Yield is good. Good dry matter content. Moderate starch content. A popular variety. Suitable over a wide range of growing conditions. Leaves tend to stay green in the autumn. Very good lodging resistance. Bred by KWS, Germany.
- Nimrod (R):** **Uncovered:** Very good yielding variety. Good dry matter content. Moderate starch content. Early maturing. Bred by Limagrain Advanta Nederland BV, The Netherlands.

Table 3: Recommended List (2010) of Forage Maize varieties suitable for growing with plastic cover.

Actual yield data is shown for the mean of the control varieties, and the relative yield data (as % of controls) is shown for all varieties. The data is based on results of a total of 10 trials carried out in the period 2007 to 2009.

	With Plastic Cover					
	Yield of Dry Matter	Dry Matter content	Starch content	Earliness of emergence through plastic Score (1 – 9). (9 = earliest, 1 = latest).	Plant Height (metres)	Year first Recomm -ended
Controls* (actual)	15.3t/ha	33.6%	26.8%	6.0	1.90	---
Aurelia (PR-2)	96	107	109	5.0	1.84	2009
Justina (R)	104	92	102	6.1	1.96	2005
Piazza (PR-1)	115	87	84	5.0	2.04	2010
Schumi (R)	98	108	99	6.2	1.89	2006
Surprise (R)	100	116	111	6.7	1.79	2009
Tekni (PR-1)	107	105	103	6.4	1.85	2010

* The Control varieties were Algans, Justina and Schumi in 2007 trials, and Justina and Schumi in 2008 and 2009 trials.

(R): Recommended for general use. (PR): Provisionally Recommended (The number after the PR, indicates the number of years provisionally recommended).

Crops grown under plastic cover, produce relatively consistent yield and quality from year to year. The plastic cover reduces the adverse effects of poor climatic conditions.

Yield and quality data shown for Uncovered trials (Table 2) and Plastic covered trials (Table 3) are not directly comparable, because the trials were grown in different locations and under different conditions.

Characteristics of the Varieties in Table 3, when Grown With Plastic Cover.

- Aurelia (PR-2):** **With Plastic:** Yield is moderate. High dry matter content. High starch content. Medium-early maturing variety. Bred by Limagrain Advanta Nederland BV, The Netherlands.
- Justina (R):** **With Plastic:** High yielding variety. Dry matter content is moderate. Very good starch content. A popular variety. Medium-late variety requiring early sowing to maximise yield and quality. Bred by Pioneer, France.
- Piazza (PR-1):** **With Plastic:** New to the list with a provisional recommendation. Highest yielding variety. Dry matter content and starch content are considerably lower than for other varieties. Late maturing variety only suitable for early sowing. Bred by Limagrain Advanta Nederland BV, The Netherlands.
- Schumi (R):** **With Plastic:** Yield is good. High dry matter content. Moderate starch content. Medium-early maturing variety that allows good yields to be achieved as well as timely harvesting. Bred by Caussade, France.
- Surprise (R):** **With Plastic:** Came onto the recommended list in 2009 with a provisional recommendation. Upgraded to a full recommendation for 2010. Yield is good. Highest dry matter and starch contents. Very early maturing variety. Bred by Suedwestsaat GbR, Germany.
- Tekni (PR-1):** **With Plastic:** New to the list with a provisional recommendation. Very high yielding variety. High dry matter content. Very good starch content. Medium-early maturing variety that allows high yields to be achieved as well as timely harvesting. Bred by Caussade, France.

RECOMMENDED LISTS

Cereal Varieties

Herbages Varieties: (Grasses and Clover)

Forage Maize Varieties

CROPS SCHEMES AND SERVICES

Seed Certification

Seed Testing

The use of certified seed ensures a high level of varietal purity and germination.

Requests for this booklet should be sent to:

Plant Health, Crop Production & Safety Division, Department of Agriculture, Fisheries and Food, Administrative Building, Backweston Campus, Stacumny Lane, Celbridge, Co Kildare, or
E-mail christine.prior@agriculture.gov.ie

Alternatively, Recommended Lists can be obtained from the Department of Agriculture, Fisheries and Food website; **www.agriculture.gov.ie** where they can be found under the heading 'PUBLICATIONS'.