

Forage Maize Varieties

Irish Recommended List 2013



**The Department of
Agriculture, Food and the Marine**
An Roinn Talmhaíochta, Bia agus Mara

CROPS EVALUATION & CERTIFICATION DIVISION

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IMPORTANT NOTICE

The Department of Agriculture, Food and the Marine (DAFM) 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, Food and the Marine 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, Food and the Marine (DAFM) trials (2010 to 2012) are presented in Table 1.

Table 1: Average Sowing and Harvesting Dates for DAFM trials 2010 to 2012

	Uncovered Trials	Plastic Covered Trials
Sowing Date	30 th April	22 nd April
Harvest Date	29 th October	15 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, Food and the Marine 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, Meath and Kildare during the period 2010 to 2012. 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 2010 to 2012. 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 five 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, Food and the Marine 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. SAC Laboratories, Scotland determine the metabolisable energy content. Metabolisable energy content is expressed as megajoules per kilogram of dry matter.

Table 2: Recommended List (2013) of Forage Maize varieties suitable for growing without plastic cover (Uncovered).

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 trials carried out over three years in the period 2010 to 2012.

	Yield of Dry Matter (t/ha)	Dry Matter content (%)	Starch content (%)	ME (MJ/kg)	Plant Height (metres)	Year first Recommended
Controls*	11.4t/ha	32.0	20.3	---	---	---
Acclaim (R)	92	116	125	10.8	1.74	2010
Adept (R)	105	96	114	10.9	1.90	2011
Andante (R)	98	100	97	10.4	2.04	2003
Atrium (PR-1)	112	91	106	10.8	1.90	2013
Beacon (R)	112	100	108	10.9	2.00	2012
Beethoven (R)	115	94	94	10.5	2.03	2010
Destiny (R)	100	108	111	10.8	1.93	2011
Fergus (R)	104	97	93	10.7	1.99	2008
Kougar (R)**	100	103	110	10.8	1.87	2011

**Kougar – The variety exhibited early brackling in the 2012 trial season.

* The Control varieties were Andante, Fergus and Nimrod: 2010 trials and Andante, Fergus and Katy: 2011 trials & Andante, Fergus and Destiny: 2012 trials.

* Due to insufficient lodging occurring during the trial period 2010 to 2012, it was not possible to provide varietal lodging data.

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

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 (R):** **Uncovered:** Yield is lowest on the list. Highest dry matter content variety on the list. Starch content is very high. Very early maturing variety. Bred by Limagrain Advanta Nederland BV, The Netherlands. Irl Agent: Goldcrop Ltd.
- Adept (R):** **Uncovered:** High yielding variety. Moderate dry matter content. Starch content is very high. Medium-early maturing variety. Bred by Limagrain Advanta Nederland BV, The Netherlands. Irl Agent: Goldcrop Ltd.
- Andante (R):** **Uncovered:** Good yielding variety. Good dry matter and starch contents. Medium-early maturing variety. Bred by Limagrain Advanta Nederland BV, The Netherlands. Irl Agent: Seed Technology Ltd.
- Atrium (PR-1)** **Uncovered:** New to the list with a provisional recommendation. Very High yielding variety. It has the lowest dry matter content on the list. Very high starch content. Late maturing variety. Bred by Limagrain Advanta Nederland BV, The Netherlands. Irl Agent: Seed Technology Ltd.
- Beacon (R)** **Uncovered:** Came onto the recommended list in 2012 with a provisional recommendation. Upgraded to a full recommendation for 2013. Very high yielding variety. Good dry matter content. Very High starch content. Medium-early maturing variety. Bred by Limagrain Advanta Nederland BV, The Netherlands. Irl Agent: Goldcrop Ltd.
- Beethoven (R):** **Uncovered:** Very high yielding variety. Moderate dry matter content. Moderate starch content. Medium-late maturing variety. Bred by Limagrain Advanta Nederland BV, The Netherlands. Irl Agent: Seed Technology Ltd.
- Destiny (R):** **Uncovered:** Good yielding variety with very high dry matter and starch contents. Early maturing variety. Bred by Limagrain Advanta Nederland BV, The Netherlands. Irl Agent: Seed Technology Ltd.
- Fergus (R):** **Uncovered:** Very high yielding variety. Good dry matter. Starch content is moderate. Medium-early maturing variety. Suitable over a wide range of growing conditions. Bred by Maisadour, France. Irl Agent: Seed Technology Ltd.
- Kougar (R):** **Uncovered:** Good yielding variety. Very good dry matter content. Very high Starch content. Medium-early maturing variety. Bred by KWS, Germany. Irl Agent: Seed Technology Ltd.

Table 3: Recommended List (2013) of Forage Maize varieties suitable for growing with plastic cover (Covered).

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 trials carried out in the period 2010 to 2012.

With Plastic Cover							
	Yield of Dry Matter (t/ha)	Dry Matter content (%)	Starch content (%)	ME (MJ/kg)	Earliness of emergence through plastic Score (1 – 9). (9 = earliest, 1 = latest).	Plant Height (metres)	Year first Recommended
Controls*	17.1t/ha	38.2	28.6	---	---	---	---
Award (R)	103	102	106	11.5	6.0	2.0	2011
Justina (R)	106	92	91	11.2	7.0	2.2	2005
Surprise (R)	94	108	107	11.5	8.0	2.0	2009
Tekni (R)	105	102	98	11.2	8.0	2.1	2010

* The Control varieties were Justina and Surprise in 2010 and 2011 trials & Justina, Surprise and Award in the 2012 trials.

* Due to insufficient lodging occurring during the trial period 2010 to 2012, it was not possible to provide varietal lodging data.

(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.

- Award (R):** **With Plastic:** Very good yielding variety. Dry matter content is very good. Very high starch content. Medium-early maturing variety. Bred by Limagrain Advanta Nederland BV, The Netherlands. Irl Agent: Goldcrop Ltd.
- Justina (R):** **With Plastic:** Very high yielding variety. Dry matter content is moderate. Moderate starch content. Medium-late maturing variety. Bred by Pioneer, France.
- Surprise (R):** **With Plastic:** Moderate yielding variety. Highest dry matter variety on the list. Very high starch content. Very early maturing variety. Bred by Suedwestsaat GbR, Germany. Irl Agent: Goldcrop Ltd.
- Tekni (R):** **With Plastic:** High yielding variety. Very good dry matter content. Starch content is good. Medium-early maturing variety. Bred by Caussade, France. Irl Agent: Goldcrop Ltd.



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RECOMMENDED LISTS

Cereal Varieties

Herbages Varieties: (Grasses and Clover)

Forage Maize Varieties

Winter Oilseed Rape 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:

Crop Policy, Production & Safety Division, Department of Agriculture, Food and the Marine, Administrative Building, Backweston Campus, Stacumny Lane, Celbridge, Co Kildare, or
E-mail annl.murphy@agriculture.gov.ie

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