

Forage Maize



Recommended Varieties
for Northern Ireland
2015



Department of
**Agriculture and
Rural Development**

www.dardni.gov.uk



Agri-Food and
Biosciences Institute

Recommended Booklet

This booklet provides information on the forage maize varieties currently recommended by DARD for use in Northern Ireland.

The booklet is designed to act as a variety selection tool for farmers and merchants and as a technical document to assist DARD extension staff make use of the latest advances in plant breeding.

Given that Northern Ireland is considered a marginal area for growing forage maize, variety selection for trialling involved pre-screening for maturity classification with only those in the earliest categories being tested.

The booklet contains a summary list of the recommended varieties followed by various tables of performance results and descriptive texts that define variety potential in Northern Ireland.

Recommendations are reviewed and published annually.

Acknowledgements:

The plant breeders, merchants and maintainers who supplied seed of the varieties tested are thanked for their assistance. The members of the Maize and Alternative Crops Group of the Ulster Grassland Society, who assisted in providing on-farm variety trial sites, are also thanked.

Booklet also available online at www.afbini.gov.uk/reclists

A large print version of this booklet can be supplied on request.

Forage Maize Varieties for 2015

E J MEEHAN BSc MSc PhD
Plant Testing Station, AFBI Crossnacreevy
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Recommendations Valid for One Year

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For details of contacts and other services see the inside and back cover pages



Maize (sown at Gransha, 29th April 2014) beginning to emerge through plastic (28th May 2014)



Maize varieties at Carrowdore had established well under plastic by late June 2014

Introduction

This booklet comprises the Recommended List of Forage Maize Varieties for Northern Ireland. It is produced for the Department of Agriculture and Rural Development for Northern Ireland by AFBI and is an important information resource for local growers, seed traders and international plant breeders.

The booklet contains the main performance characteristics of the Forage Maize varieties recommended for use in Northern Ireland. These varieties have all been tested under local growing conditions and found capable of providing high agronomic performances consistent with the needs of Northern Ireland growers.

Varieties are selected for testing based primarily on performances in UK National List trials, supplemented by evidence of variety performances supplied by breeders and their marketing representatives (all listed varieties are conventionally bred). Given that Northern Ireland is a marginal maize growing area, the varieties tested to date have been from the earlier end of the maturing range within the forage maize crop.

The results presented in this booklet are an accumulation of eighteen years of trial studies in order to develop appropriate systems for assessing varieties under Northern Ireland's climatic conditions and to provide a robust over-years data matrix of variety performances. This work has also provided an understanding of how different types of varieties react to local growing conditions and management options and has built up a sufficient quantity of results to make these recommendations possible.

No varieties with severe weaknesses in lodging or brackling, disease resistance or any other agronomic factors are recommended, though if varieties are left to 'over mature' then some lodging and brackling may occur. All varieties are on the EU Common Catalogue and most are currently on the UK National List of Forage Maize Varieties.

Seed supplies are expected to be available for all the fully listed varieties during 2015, though quantities of the most sought after varieties may not always meet demand and so early selection of seed for sowing is advised. In the majority of cases, however, suitable alternatives of a similar type are available and in case of difficulty, guidance can be acquired from the DARD contacts listed on the back page.

Summary Of Recommended Varieties

This section lists the names of the recommended varieties for 2015 and shows the identity of the breeders.

RECOMMENDATION CATEGORIES

The normal progression of varieties begins with a 'Provisional Recommendation' (P) after two trial years. Varieties can then progress through the recommended categories from 'Plain Type' to '**Bold Type**' after additional annual trials, or they can be removed if their provisional performances weaken.

For open establishment in 2015, Lapriora has been moved up to Bold. Karimbo and Surprise have been moved down to plain and Kroesus has been removed as it is no longer commercially available. Ambition, Arcade and P6862 have moved up from provisional to plain and four new varieties have been added as open provisional recommendations: Glory, Ramirez, Sergio KWS and Sunlite.

Under plastic establishment, one variety, PR39V43 has moved from Bold down to plain and three varieties moved up from provisional to plain: Ambition, Borgi CS and P7892. Four new provisionally recommended varieties have been added: Asgaard, ES Remington, Fieldstar and Mas 11F. Three varieties have been outclassed and removed from the list: Surprise, Ronaldinio and Gladi CS and Kroesus has been removed as reported. Preliminary information on the top performing new candidate varieties in their first trial year is provided on page 17 as an indication of future developments in variety improvement.

Recommended Forage Maize Varieties 2015

Open Establishment

BOLD TYPE		Plain type and provisional type	
Variety	Maintainer or Agent	Variety	Maintainer or Agent
KOUGAR	KWS Saat AG	Ambition	Limagrain
LAPRIORA	KWS Saat AG	Arcade	Limagrain
		P6862	DuPont Pioneer
		S Karimbo	KWS Saat AG
		Surprise	Saaten Union (UK) Ltd
		P Sergio KWS	KWS Saat AG
		P Sunlite	Limagrain
		P Glory	Limagrain
		P Ramirez	KWS Saat AG

Plastic Mulch System

BOLD TYPE		Plain type and provisional type	
Variety	Maintainer or Agent	Variety	Maintainer or Agent
SALGADO	KWS Saat AG	Ambition	Limagrain
MAS 10C	Maisadour Semences	P7892	DuPont Pioneer
AWARD	Limagrain	Mas 08G	Maisadour Semences
MAS 12A	Maisadour Semences	PR39V43	DuPont Pioneer
NK Jasmic	Syngenta Seeds	S Borgi CS	Caussade Semences
PADDY	Syngenta Seeds		
S BENICIA	DuPont Pioneer	P Fieldstar	Limagrain
		P Mas 11F	Maisadour Semences
		P ES Remington	Euralis Semences
		P Asgaard	Limagrain

[P = provisional, S = specific use]

Variety Testing System

This section provides information on how the trials were conducted and describes the performance characteristics reported in the results tables.

TRIAL MANAGEMENT DETAILS:

The results presented in this booklet are a compilation of a series of ten annual trials, originally sited near Dromore Co Down (54°26'N, 6°10'W), and later near Comber Co Down (54°33'N, 5°45'W) and Carrowdore Co. Down (54°34'N, 5°33'W) and on the trial grounds at Crossnacreevy (Gransha) (54°32'N, 5°52'W). Since 1997, varieties have been tested under the standard 'open establishment' system. Since 2001 a plastic mulch system has also been used. Not all varieties are tested under both management systems as later silking types need plastic mulch to fully mature in N. Ireland. Conversely, very early maturing but potentially lower yielding types are not economic under plastic.

- **Trial Plots:** The 14m long trial plots comprise four rows at a spacing of 75cm. Three replicate plots are sown under each management. To avoid edge effects between varieties, only the two central rows are harvested.
- **Sowing Details:** A sowing rate of 100k seeds/ha is used for all varieties with seed spacing of 13cm and a sowing depth of 3.5cm.
- **Sowing and Harvest Dates:** The trials are always sown as soon as possible after soil temperatures reach around 10°C, which is normally towards the last week of April. Harvesting is timed on the basis of a target 30% dry matter content averaged across all the varieties. This means that the plastic mulch system maize is generally harvested in mid October, while the open established plots are allowed to grow on, normally until growth ceases at the end of October or early November.
- **Fertility and Weed Control:** The application of fertilizer is modified depending on whether farmyard manure or slurry has been applied to the trial site. Following soil analysis, the final levels of nitrogen, potash and phosphate that are applied are consistent with RB209 guidelines. In the open system, part of the nitrogen and, if required, the phosphate, is delivered 'down the spout'. Pre-emergence herbicides under plastic contain the active ingredients: Bromoxynil; Flufenacet; Isoxaflutole; Terbutylazine and a mineral oil adjuvant (wetting agent). Open trials have post emergence herbicides applied six weeks after sowing and contain the active ingredients Mesotrione, Terbutylazine and Bromoxynil with a mineral oil adjuvant. Additional broad-leaf weed herbicides are applied as necessary in compliance with manufacturers' directions.
- **Plastic Film:** The film used is a 6µm photodegradable plastic applied over rows 1 & 2 and rows 3 & 4 of the 4-row plots.

MEASURED CHARACTERISTICS:

A range of performance characters are noted during the growing of the crop or assessed on the harvested herbage as follows:

Silking Date: This is the average date on which each variety produces its female flowers, called silks. This is an important agronomic date as it is not until these silks have been fertilised by pollen from the male 'tassel' flowers, that cob filling can commence.

Silking Height: This is the height of plants at silk emergence, measured in centimetres to the base of the tassel and expressed +/- 180cm.

Total Yield: This is the total dry matter yield in t/ha produced by each variety and is presented in the tables as a percentage of the control yields.

Dry Matter Content: This is the percentage dry matter of the harvested material and is an important characteristic as it indicates the degree of maturity the variety managed to achieve by the time of harvest. Varieties failing to reach at least 25% DM can be expected to have an effluent loss risk and may not be suitable for more marginal locations or for growing in Northern Ireland without plastic.

Starch Production: The amount of starch produced in the total harvested material is presented as a percentage 'Starch Content' and as a 'Starch Yield' (calculated as a percentage of the control yield in t/ha). This is an important indicator of the feeding value of the harvested material, especially when being fed as a supplement to a mainly grass silage winter feed or as a buffer feed to stock grazing spring grass.

Metabolisable Energy: This is a measure of the total energy produced by the crop and is presented as a percentage 'ME Content' and as an 'ME Yield' (calculated as a percentage of the control yield in t/ha). This is an important indicator of the animal value of the crop, which is particularly important when forage maize silage is the primary winter feed.

Additional Characteristics: The trials are regularly monitored throughout the growing season and observation notes taken on visible characteristics of agronomic value. These include lodging, brackling, disease infestation, early vigour, cob ripeness and any other exceptional growth responses. In addition, total digestibility and organic matter are analysed on the harvested crop. None of these results are presented in the data tables, but where a variety has a specific strength or weakness then this is described in the 'Indexed List of Variety Descriptions' section of the booklet.

Variety Performance Results

This section presents the performance results for the recommended forage maize varieties when grown in open establishment and when protected with plastic mulch.

INTERPRETING THE TABLES

The variety performances under the open establishment and plastic mulch systems are presented in separate tables.

- In the 'Open Establishment' table, the varieties are listed in declining order of 'Starch Yield' within the 'Bold', 'Plain' and 'Provisional' groups, the figures for which are typed in orange and underlined. This tends to bring the earliest maturing varieties with highest starch contents plus good yields towards the top of the table. These types of varieties are most suited to this management system.
- In the Plastic Mulch table, the varieties are also listed in declining order of 'Starch Yield' within the 'Bold', 'Plain' and 'Provisional' groups, the figures for which are typed in orange and underlined. This brings the later maturing varieties with the highest DM yield/DM%/starch content combinations towards the top of the table. These more productive varieties are needed to justify the additional expense associated with this management system. When reading either of these tables it is **VITAL** to note that provisional recommendations are based on two years of testing (first number column) and data should be treated with caution.
- Both the open and plastic trial results are an average of the previous ten years. For this reason, the performance tables DO NOT show accurately the size of difference expected to exist between open established and plastic covered crops grown in the same year. The next section of this booklet clearly shows the expected extent of this difference. ***These variety tables should not be used to estimate the performance differences between open established and plastic covered systems. This comparison is provided on the following page.***

PLASTIC MULCH AND OPEN ESTABLISHMENT SYSTEMS

The use of plastic film has a substantial effect on the temperatures around the base of the plants. Temperature increases of around 30%, measured as accumulated Ontario Heat Units (OHU), have been recorded at Crossnacreevy and this advantage extends more than 10cm below the soil surface. Most of this additional heat occurs in May, June and very early July before the crop canopy fully closes. This causes the crop to germinate quicker, emerge earlier and grow faster up to silking in July. The impact of this on the performance of the crop is considerable.

Crop Performance 'With' and 'Without' Plastic Mulch

	Silking Date	Total Yield t/ha	DM Content %	Starch Yield t/ha	Starch Content %	ME Yield GJ/ha	ME Content MJ/kg
Plastic Mulch	30 Jul	15.6	35	5.8	37	172	11.1
Open Established	15 Aug	12.8	30	3.6	28	135	10.6
Plastic Gain	16 days	2.8	5	2.2	9	37	0.5

These results are the average of the years from 2004-2014 for the best five varieties in each year under both the plastic and open systems. In both cases 'best' was defined as those with 'highest starch yield'. (N.B. 2012 data excluded). The table shows that in addition to advancing silking by two weeks, all other important performance characters are improved by the use of plastic mulch including allowing growers to sow (and harvest) their crops several weeks earlier than would be possible for open established crops. As the open and plastic variety trials at Crossnacreevy have to be sown on the same day, the additional advantage of earlier sowing is not evident in the table above. It has been estimated that earlier sowing could add at least an additional 1 t/ha of total DM yield, most of which would be starch.

Why pay extra to sow maize using plastic film?

Maize starch for animal feed has been marketed on the European mainland at approximately £500/tonne (advertised November 2014). Sowing maize with plastic film requires in the region of just under an extra £300 per hectare compared with open sown plastic however, as can be seen from the table, there is an average gain of not only 2.8 t DM/ha but over 2 tonnes starch per hectare. This means that, on average, the extra £300 pounds per hectare spent on the plastic system should generate an extra £1000 worth of starch. Starch yields vary greatly between varieties and from year to year but in a marginal maize growing region such as Northern Ireland the yield variability is reduced when using the best varieties from the Recommended List sown under plastic film.

Plastic Mulch System

Control Values	Silking Dates	Silking Height 180cm +/-	DM		Starch		ME		
			Yield 15.9 t/ha %	Content 30% +/-	Yield 5.6 t/ha %	Content 30% +/-	Yield 174 GJ/ha %	Content MJ/ kgDM	
Variety Name & Trial Years									
S	SALGADO	5	30 Jul	+22	96	+4	106	+9	11.1
	MAS 10C	4	29 Jul	+10	100	+6	106	+7	11.2
	AWARD	7	2 Aug	+17	104	+2	104	+5	10.9
	MAS 12A	7	28 Jul	+8	100	+6	100	+5	11.0
	NK JASMIC	4	1 Aug	+20	102	+1	97	+4	11.0
	PADDY	5	30 Jul	+2	98	+5	97	+5	11.1
	BENICIA	6	7 Aug	+35	106	-5	92	+1	10.7
	Ambition	3	28 Jul	+18	100	+12	116	+1	11.3
	P7892	3	30 Jul	+23	106	+5	115	+8	11.4
	Mas 08G	3	28 Jul	-7	94	+9	100	+7	11.1
	PR39V43	4	29 Jul	+24	95	+3	98	+6	10.9
S	Borgi CS	3	5 Aug	+28	106	-1	97	+2	10.6
P	Fieldstar	2	28 Jul	+8	100	+10	117	+11	11.4
P	Mas 11F	2	29 Jul	+23	104	+4	106	+6	10.9
P	ES Remington	2	29 Jul	+9	95	+10	105	+9	11.2
P	Asgaard	2	30 Jul	+24	97	+5	103	+8	11.2

Open Establishment System

Control Values Variety Name & Trial Years	Silking Dates	Silking Height 180cm +/-	DM Yield 13.0 t/ha %	DM Content 30% +/-	Starch Yield 3.3 t/ha %	Starch Content 25% +/-	ME Yield 137 GJ/ha %	ME Content MJ/kgDM
S KOUGAR	5	13 Aug	104	-2	107	+1	105	10.6
LAPRIORA	4	14 Aug	102	-2	114	+4	103	10.6
Ambition	3	11 Aug	102	+2	118	+5	104	10.8
Arcade	3	10 Aug	97	+3	111	+4	99	10.7
P6862	3	11 Aug	94	0	105	+4	95	10.7
Karimbo	5	13 Aug	94	0	100	+2	93	10.4
Surprise	6	15 Aug	97	-3	98	+1	98	10.6
P Sergio KWS	2	10 Aug	102	+5	129	+8	104	10.7
P Sunlite	2	11 Aug	95	0	117	+7	99	11.0
P Glory	2	9 Aug	98	+4	113	+5	99	10.7
P Ramirez	2	8 Aug	95	0	110	+5	96	10.7

Note: Varieties listed in order of "Starch Yield" – underlined values
[P = provisional, S = specific use, O = becoming outlassed]

Indexed Lists of Variety Descriptions

This section provides outline descriptions of the main agronomic features of each variety. (Varieties are listed in alphabetical order)

VARIETY DESCRIPTIONS

Variety descriptions provide an overview of the main agronomic characteristics of each variety, highlighting the main strengths and specific uses as appropriate. These overall performance descriptions should assist farmers and specialists to compare varieties and select those best suited to a particular enterprise. By referring back to the preceding results tables, varieties that are flexible and multipurpose and those that tend to optimise performance under specific management systems can be identified.

Fully Recommended Varieties in either Bold or Plain classes

(PLASTIC or OPEN sown recommended)

Ambition (PLASTIC AND OPEN) The only variety currently recommended for both plastic and open systems. Ambition provides very good total DM and ME yields and excellent starch yields under both management systems.

Arcade (OPEN) A very early maturing variety which can deliver good DM and ME yields in open sown trials and a very high starch yield with good starch content.

Award (PLASTIC) This later maturing bold type variety consistently provides very good DM, starch and ME yields.

Benicia (S) (PLASTIC) The tallest and latest maturing variety can provide a very high DM and ME yield and is specifically recommended (S) only for early sowing under plastic in very mild regions to ensure the crop fully matures. The variety has the potential for higher starch yields and DM% in the best locations.

Borgi CS (S) (PLASTIC) A very tall, late maturing variety with very high DM and ME yields. Specifically recommended (S) for favourable sites with early sowing under plastic and mild growing conditions, higher starch contents can be achieved to give higher starch yields than listed.

Karimbo (S) (OPEN) This variety develops a good starch content and high starch yield and is specifically recommended for more favourable sites due to the indication from the DM yield and ME figures.

Kougar (OPEN) This bold type variety produces high DM and ME yields and a very high starch yield with good starch content.

Lapriora (OPEN) This bold type variety delivers consistently high DM and ME yields and excellent starch yields with very high starch content.

Mas 08G (PLASTIC) An early maturing, relatively short variety which can give high DM yields under plastic at very high DM content as well as a high starch content and yield and a good ME yield.

Mas 10C (PLASTIC) An early silking, relatively tall bold type variety which can give very high DM, starch and ME yields under plastic with a high DM and starch content.

Mas 12A (PLASTIC) An early maturing variety of average height providing a very high starch content including an impressive yield performance for DM, starch and ME.

NK Jasmic (PLASTIC) A tall variety, this recommendation produces very high total and ME yields and a high starch yield. Its DM content indicates a requirement for good conditions to support full maturity at harvest.

P6862 (OPEN) A short variety with a very good starch yield. This variety silks in the middle of the range for open sown varieties and would benefit from earlier sowing in milder sites to allow potential for higher DM yield and content to be achieved.

P7892 (PLASTIC) A very tall variety which can give a very high DM yield and the highest ME yield of any recommended variety plus excellent starch yields with a high starch content.

Paddy (PLASTIC) This bold type variety delivers high DM and ME yields plus high starch yields from relatively early short plants. It dries down well to deliver a good starch content.

PR39V43 (PLASTIC) This tall, fully recommended variety has good DM, starch and ME yields and also has good starch content and above target DM content.

Salgado (PLASTIC) A tall variety that has high total and ME yields, and due to it very high starch developing character, also delivers very impressive starch yields.

Surprise (OPEN) Good DM, starch and ME yields can be achieved from these tall later maturing plants which would benefit from milder conditions.

Provisionally Recommended Varieties

Having only two years of data on each of these varieties means that their results and descriptions are preliminary and should be treated with caution.

Asgaard (P) (PLASTIC) A tall new provisional recommendation with good DM and ME yields and a very high starch yield.

ES Remington (P) (PLASTIC) Good DM and ME yields can be achieved from this new provisional recommendation as well as very high starch yields with good DM and starch content.

Fieldstar (P) (PLASTIC) A new provisional recommendation delivering the highest starch yield and ME content on the list as well as good DM and ME yield and exceptional starch content.

Glory (P) (OPEN) A very early maturing variety this new provisional recommendation produces good DM and ME yields and an excellent starch yield.

Mas 11F (P) (PLASTIC) This tall new provisionally recommended variety provides excellent DM, starch and ME yields with high starch content.

Ramirez (P) (OPEN) The earliest maturing open sown variety this new provisional recommendation is a short plant producing good DM and ME yields and an excellent starch yield.

Sergio KWS (P) (OPEN) An early maturing, short variety this new provisional recommendation has very high DM and ME yields and the highest starch yield of any open sown variety on the recommended list.

Sunlite (P) (OPEN) Exceptional starch yields can be achieved from this new provisional variety as well as good DM and ME yields with a good starch content and the highest ME content of any open sown recommended variety.

Growing Conditions and Variety Choice

This section provides a guide as to how location and management factors are accounted for when choosing forage maize varieties.

Ontario Heat Units

This is a standard system of assessing growing conditions by accumulating maximum and minimum air temperatures of above 10°C in the daytime and 5°C at night, from the 1 May to the 31 October.

Seasonal Ontario Heat Unit (OHU) Accumulations

Harvest Year	OHU 1st May – 31st Oct	Trial Sites
1997	2368	Dromore
1998	2250	Dromore and Comber
1999	2407	Dromore and Comber
2000	2256	Dromore and Comber
2001	2393	Gransha
2002	2100	Gransha
2003	2338	Gransha & Comber
2004	2385	Gransha & Comber
2005	2303	Gransha & Comber
2006	2632	Gransha & Comber
2007	2375	Gransha & Comber
2008	2289	Gransha & Comber
2009	2409	Gransha & Comber
2010	2497	Gransha & Comber
2011	2140	Gransha & Comber
2012	2111	Gransha & Comber
2013	2458	Gransha & Carrowdore
2014	2488	Gransha & Carrowdore
18yr Mean	2344	Average of 1997-2014

Varieties differ in the amount of heat energy they require to reach 30% DM, but around 2300-2400 OHU is normally required for an average-maturing variety grown in the open system. If plastic mulch is used, this requirement falls to around 2100 OHU, due to the heating effects of the plastic. These trial sites are broadly of 'average to good' suitability for maize growing.

KEY CHARACTERISTICS

Growing maize successfully in Northern Ireland involves selecting varieties with the correct balance between the ability to fully mature under conditions that are seldom ideal and yet not over sacrificing performance potential. Clearly, only varieties with sufficient stress tolerance are able to deliver good yield, quality and energy outputs under these conditions, but the varieties that are least demanding of growing conditions are generally among the lower yielding varieties.

Finding the correctly balanced variety to meet each grower's needs, depends on how suitable the growing area is and how good are the specific fields to be used, on whether or not plastic cover is being used and whether starch content or total energy output is the more important factor.

Candidate Varieties Under Test

Some varieties were tested in 2014 for the first time in Northern Ireland. Due to the amount of variation in variety performance from year to year, these candidates will not be considered for recommendation in the specified management system until they have completed at least two years of recommended list testing. Therefore, the best of the following varieties will continue for a further year of testing and will NOT be considered until 2016 for recommendation. The basic data are given for information purposes only.

Candidate Forage Maize Varieties in the 2014 Sown Recommended List Trials

(None of these varieties can be considered for recommendation until 2016)

VARIETY	Test Yrs	Silking Date	Silking Height	DM Yield	DM Content	Starch Content	ME Content
Open Establishment Trial Results 2014							
			180cm	13.0 t/ha	%	%	MJ/Kg
Augusta KWS	1	12 Aug	-3	<u>99</u>	32	32	10.9
Rubiera KWS	1	9 Aug	-17	<u>96</u>	36	32	10.8
Mas 06T	1	12 Aug	+14	<u>99</u>	33	28	10.6
Plastic Mulch Trial Results 2014							
			180cm	15.2 t/ha	%	%	MJ/Kg
DKC3333(C)	1	4 Aug	+10	<u>110</u>	35	37	11.1
Schobbi CS	1	31 Jul	+29	<u>106</u>	33	39	11.2
Perez KWS	1	29 Jul	+14	<u>105</u>	38	39	11.0
P8105 (C)	1	31 Jul	+28	<u>103</u>	35	40	11.4
Osterbi	1	30 Jul	+17	<u>98</u>	33	39	11.3
Coditank	1	2 Aug	+19	<u>100</u>	33	38	11.1
Rogoso	1	31 Jul	+31	<u>108</u>	38	34	11.8
Monty	1	31 Jul	+15	<u>100</u>	35	36	11.9

General Principles:

- The dry matter content of the harvested crop should not be less than 25% as, below this level, effluent problems become an increasing risk. While it must always be realised that years can differ dramatically, if previous crops have failed to achieve this 25% target level, then earlier maturing varieties than before, should be selected.
- Conversely, maturing a crop beyond 35% dry matter and certainly over 40% is not advised, as there are no apparent animal performance benefits and utilisation and ensiling problems can occur. If previous crops have either become too dry or have had to be harvested too early in the autumn, and this pattern has been repeated for several years, then selecting a later maturing variety should provide higher yields from a crop that is still within the 25-35% DM range.

Specific Requirements:

- If plastic cover is being used this will advance the maturity of the crop and will allow later silking, higher yielding varieties to be used than would be possible if growing an open established crop. Therefore, the key characteristics for selecting varieties under plastic are their starch, ME and total dry matter yield potentials.
- If growing maize in open establishment, then the crop has no protection from the ambient conditions and unless in a very favourable growing area, dry matter content (DM%) ranking is an important characteristic as this identifies the risk of not getting a fully matured crop under restricted growing conditions, particularly if it proves to be a poor season.
- If high starch content is an important criterion for winter diets, then any variety compromises should be made in favour of earlier maturity and higher DM%, as this will represent less risk of getting a disappointing starch content if growing conditions are unseasonably poor.
- If high total energy (ME) content is an important criterion for winter diets, then any variety compromises should be made in favour of later maturity and higher total yield. The key limitation is ensuring that the variety chosen is still capable of achieving the 25% DM threshold within the constraints of the location and management system involved.

Expert guidance on variety decisions is available from local DARD offices. In general, the earliest maturing, lowest yielding varieties normally require the least energy and will be ready for harvest first. They may also tolerate poor growing seasons better, but will not have as high a yield potential as the later maturing varieties.

**Some maize varieties are not suitable in
Northern Ireland.
Trials at AFBI Crossnacreevy keep varieties
like these off the DARD Recommended List**



These maize plants were sown on the 24th April 2014 and the photo was taken shortly after a stormy night in early October (6th October 2014). This variety (name is blanked out) and another variety had passed their UK National List tests and had performed well in the field until the storm. While all of the other varieties under test stood up to the storm, two varieties brackled severely and will not be listed. Scientists at AFBI Crossnacreevy protect the farmer from fields like this through the DARD Recommended Lists.

AFBI Crossnacreevy Contacts and Services

Plant Testing Station produces the following variety performance booklets:

- Cereals - Recommended Varieties for Northern Ireland
- Grass and Clover - Recommended Varieties for Northern Ireland
- Forage Maize - Recommended Varieties for Northern Ireland
- Potatoes - Varieties for Northern Ireland

Online copies of all these lists produced by AFBI-Crossnacreevy are available at

www.afbini.gov.uk/reclists

Plant breeders, merchants and other specialists requiring technical data on trials, testing procedures and variety details should contact:

Agri-Food & Biosciences Institute
Plant Testing Station,
Crossnacreevy
Castlereagh
Belfast
BT6 9SH

Tel: +44 028 9054 8000
Fax: +44 028 9054 8001
Email: info@afbini.gov.uk
eamonn.meehan@afbini.gov.uk

Applied Plant Science and Biometrics Division provides an extensive range of technical services which is available on request to farmers, growers, public sector bodies and industry. The main services include:

- Seed germination, purity and wild oat check
- Variety performance and identity testing
- Cereal Take-all test
- Pest and disease identification and control
- Potato cyst nematode (PCN) service
- Mushroom compost and casing analysis

The DARD Forage Maize Recommended List varieties are selected by a committee consisting of:

E. Meehan (AFBI/ Chair)
G. Hoppé (AFBI)
M. Mulholland (CAFRE, DARD)

Agri-Food and Biosciences Institute

AFBI's mission:

“Supporting government policy and industry innovation across the agri-food and rural sector through the provision of high quality scientific services, advice and expertise”

AFBI provides research and development, analytical and diagnostic services, and scientific advice in agriculture, food, animal and plant health, marine and fresh water ecosystem management and the agri-environment.

AFBI's expertise includes:

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Technologies include:

Molecular technologies; light and electron microscopy; mass spectrometry; pathogenesis studies; biosensor technology; seabed mapping and minimal processing technologies.

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To find out what AFBI can do for your business, contact:

AFBI Innovations

AFBI Headquarters, Newforge Lane,
Belfast BT9 5PX, Northern Ireland, UK.

Tel: +44 (0)28 90 255 636

Fax: +44 (0)28 90 255 035

email: info@afbini.gov.uk

www.afbini.gov.uk

Key DARD Contacts: Farmers, growers and processors requiring guidance on variety selection and use should contact their local CAFRE Development Adviser on 0845 30 44 503.

New DARD telephone numbers:

Animal Health & Welfare and Veterinary Public Health	0300 200 7840
Cattle Registration line	0300 200 7855
Education and Training	0300 200 7841
Environment	0300 200 7842
Farming	0300 200 7843
Fisheries	0300 200 7844
Flood Defence and Drainage	0300 200 7845
Food	0300 200 7846
Forests	0300 200 7847
Grants and Funding	0300 200 7878
Rural Development	0300 200 7849
DARD Corporate Services	0300 200 7850
Textphone	0300 200 7851
Calls from non-UK numbers or networks/ International Calls	+44(0)28 9037 8418

Farmers, growers and processors requiring more specialist information on crops should contact:CAFRE Technology & Business Division Services, Crops and Horticulture, Greenmount College Tel: 028 9442 6770 Fax: 028 9442 6777



Department of

**Agriculture and
Rural Development**

www.dardni.gov.uk

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**Talmhaíochta agus
Forbartha Tuaithe**

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Kintra Fordèrin**

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