

Forage Maize



Recommended Varieties
for Northern Ireland
2010



Recommended Booklet

The Agri-Food Bioscience Institute at the Plant Testing Station in Crossnacreevy conducts these recommended list variety trials on behalf of the Department of Agriculture and Rural Development. This booklet, therefore, 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. It 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.

As Northern Ireland is a marginal area for growing forage maize, candidate varieties are pre-screened for maturity classification with those in the earlier categories given priority, so long as other performance indicators are to required standards.

Recommendations are reviewed and published annually.

Acknowledgements

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Cover photograph by Cliff Mason, AFBI-VSD Photographic Unit

**'Post-harvest examination of cob quality
in recommended list trials'**

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

Forage Maize Varieties for 2010

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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

How to use this Booklet

This booklet can be used to provide:

- A quick reference to which varieties are recommended by scanning the name lists in **Summary of Recommended Varieties**.
- A guide to variety performance and classification by examining the tables in **Variety Performance Results**.
- A description of the main agronomic features of varieties in **Indexed List of Variety Descriptions**.
- A merchants' reference to breeder details as listed in **Summary of Recommended Varieties**, and as a guide to the prospects of new varieties currently under tests in **Candidate Varieties Under Test**.
- As a guide to other AFBI/DARD facilities in **Contacts and Services**.

Introduction

This booklet comprises the Recommended List of Forage Maize Varieties for Northern Ireland. It is produced by the Department of Agriculture and Rural Development for Northern Ireland 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 twelve 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 factor 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 2010, 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 Agricultural Development Centres listed on the back page.

Summary Of Recommended Varieties

This section lists the names of the recommended varieties for 2010 and shows the identity of the breeder.

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 be removed if their provisional performances weaken. For 2010, two provisionally recommended varieties have been removed from the list as their performance was below acceptable standards after completing the third trial series. In addition, Crown, Goldcob, Kingdom, Leeds, Reinaldo and PR39B50 have been removed from the recommended List for 2010 as seed production has ceased and so they are no longer available. Preliminary information on the top performing new candidate varieties in their first trial year is provided on page 21 as an indication of future developments in variety improvement.

Recommended Forage Maize Varieties 2010

Open Establishment

Variety	Breeder	Variety	Breeder
KAUKAS	KWS/APZ	Sapphire	Advanta Seeds
SURPRISE	Sudwestdeuscche Saatzzucht	Crescendo	Advanta Seeds
AGASSY	C.C.A.L. (Maisadour)	P Artist	Limagrain Genetics SA
KROESUS	KWS/APZ	P Karimbo	Kleinwanzlebener Saatzzucht
RULER	Societe Mais Europe		

Plastic Mulch

Variety	Breeder	Variety	Breeder
KAUKAS	KWS/APZ	Nescio	Semences Nickerson
SALGADO	KWS/APZ	S Benicia	Pioneer
ANVIL	Limagrain Genetics	Goldclamp	Zelder b.v
TRADDI CS	Caussade Semences	PR39G12	Pioneer
KLAYMORE	KWS/APZ		
LG3193	Limagrain Genetics	P Ronaldinio	KWS/APZ
KROESUS	KWS/APZ	P Paddy	Syngenta Seeds
KLIFTON	KWS/APZ	P Gladi CS	Caussade Semences
		P PR39V43	Pioneer
Award	Advanta Seeds	P PR39D60	Pioneer
Mas 12A	Maisadour Semences		
Surprise	Sudwestdeuscche Saatzzucht	O Justina	Pioneer

[P = provisional, S = specific use, O = becoming outclassed]

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, cycled between three sites; near Dromore Co Down (54°26'N, 6°10'W), near Comber Co Down (54°33'N, 5°45'W) and on the trial grounds at Crossnacreevy (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 an average 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 a 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 during the last week of April or the first week of May. 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 is 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 farm yard manure or slurry has been applied to the trial site. In principal, RB209 guidelines

are followed to optimise the final levels of nitrogen, potash and phosphate that is applied. In the open system part of the nitrogen and phosphate is delivered 'down the spout'. Calaris is used as a pre-emergence herbicide under plastic, with Stomp, Grounded and Bromoxynil applied post emergence on open ground. Additional broad-leaf weed herbicides are applied as necessary and in compliance with manufacturers directions.

- **Plastic Film:** The film used is a 6µm unperforated photo-degradable 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 +/- Crescendo.

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 highlighted 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. It is these types of varieties that 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 highlighted 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. It is these more productive varieties that are needed to justify the additional expense associated with this management system.
- When reading either of these tables it is VITAL to note that some results are based on only one year of testing (first number column) These data cannot be relied upon until at least another and ideally two confirming trial years have been completed. For this reason these varieties have been listed as provisional recommendations.

Single trial year provisional data should be treated with caution.

- The open establishment results are an average of the last thirteen years and the plastic mulch results are an average of the last nine 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	31 Jul	15.7	33.4	5.6	36.0	172	11.0
Open Established	15 Aug	12.5	30.5	3.6	28.0	132	10.5
Plastic Gain	14 days	3.2	2.9	2.0	8.0	40	0.5

Average figures for 'Best' varieties in each system, 2001 - 2009

These results are the average of the last eight years for the best five varieties in each year under the Plastic system, and also the best under the Open system. In both cases 'best' was defined as those with 'highest starch yield'.

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. In difficult growing conditions, such as the exceptionally poor 2009 spring and summer, total DM yields on both plastic and open trials can be depressed well below the average figures shown above. The impact is normally greater for the open trial and in 2009 increased the advantage for the plastic system to 4t/ha more DM yield at 6% higher DM content.

The data in the table above were calculated as the average of the best five starch yielding varieties in each trial. In addition, the use of plastic mulch allows growers to sow their crops several weeks earlier than would be possible for open established crops, though it incurs a significantly higher cost due to the plastic laying operation. As the open and plastic variety trials have to be sown on the same day, this additional advantage 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.

Open Establishment System

Control Values		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 140 GJ/ha %	ME Content MJ/kgDM
Variety Name & Trial Years									
KAUKAS	5	15 Aug	+15	104	-1	<u>112</u>	+2	105	10.8
SURPRISE	5	16 Aug	+17	98	-3	<u>100</u>	0	98	10.8
AGASSY	5	15 Aug	+11	100	-1	<u>96</u>	-1	99	10.6
KROESUS	6	18 Aug	+29	101	-3	<u>95</u>	-2	101	10.7
RULER	5	18 Aug	+22	100	-4	<u>94</u>	-2	99	10.7
Sapphire	4	15 Aug	+19	96	0	<u>94</u>	0	95	10.7
S LG 3193	3	18 Aug	+15	99	-2	<u>94</u>	-1	98	10.6
Crescendo	10	15 Aug	+10	94	-2	<u>93</u>	0	94	10.8
P Artist	2	14 Aug	+6	92	-1	<u>101</u>	+2	93	10.9
P Karimbo	3	14 Aug	+4	92	0	<u>99</u>	+2	91	10.7

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

Commercialisation of Crown, Kingdom, Leeds and Reinaldo has ceased and so are no longer recommended
ES Regain has been removed from this list, having been reported as 'Provisional' in the 2009 booklet.

Plastic Mulch System

Control Values		Silking Dates	Silking Height 180cm +/-	DM Yield 15.2 t/ha %	DM Content 30% +/-	Starch Yield 5.4 t/ha %	Starch Content 30% +/-	ME Yield 166 GJ/ha %	ME Content MJ/kgDM
Variety Name & Trial Years									
	KAUKAS	4 29 Jul	+9	105	+5	<u>114</u>	+8	107	11.1
	SALGADO	4 2 Aug	+25	103	+4	<u>111</u>	+8	105	11.1
	ANVIL	5 31 Jul	+18	104	+5	<u>106</u>	+6	104	10.9
	TRADDICS	4 31 Jul	+4	101	+2	<u>102</u>	+6	99	10.8
	KLAYMORE	5 3 Aug	+21	99	+5	<u>101</u>	+6	100	11.0
	LG3193	5 2 Aug	+2	102	+6	<u>100</u>	+5	102	10.9
	KROESUS	6 1 Aug	+19	99	+3	<u>98</u>	+5	99	10.9
	KLIFTON	4 2 Aug	+20	99	+2	<u>96</u>	+5	98	10.8
	Award	3 4 Aug	+17	116	+1	<u>110</u>	+4	114	10.7
	Mas 12A	3 31 Jul	+9	107	+5	<u>106</u>	+5	107	10.9
	Surprise	4 31 Jul	+13	99	+4	<u>103</u>	+7	99	11.0
	Nescio	4 2 Aug	-7	95	-1	<u>96</u>	+6	95	10.9
	Benicia	4 10 Aug	+40	112	-6	<u>93</u>	-1	110	10.7
	Goldclamp	5 7 Aug	+22	106	-1	<u>90</u>	0	103	10.7
	PR39G12	5 8 Aug	+39	101	-2	<u>88</u>	+1	100	10.8
	P Ronaldinio	2 4 Aug	+34	108	+1	<u>102</u>	+4	106	10.8
	P Paddy	3 2 Aug	+1	106	+2	<u>101</u>	+4	106	10.9
	P Gladi CS	3 1 Aug	+17	102	+3	<u>98</u>	+4	101	10.8
	P PR39V43	2 2 Aug	+25	101	+2	<u>96</u>	+4	100	10.8
	P PR39D60	3 6 Aug	+41	102	-2	<u>90</u>	+1	101	10.8
	O Justina	9 5 Aug	+38	99	-3	<u>85</u>	0	98	10.8

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

Commercialisation of PR39B50 has ceased and so are no longer recommended
Husky CS has been removed from this list, having been reported as 'Provisional' in the 2009 booklet.

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

Agassy This medium height early maturing variety has a high yield potential when open grown, forms a good starch content and delivers a high ME yield.

Anvil Under a plastic system it matures early to give one of the higher DM% and starch contents which when combined with its yield potential produces impressively high starch and ME yields.

Award An average height, average maturing variety that delivers exceptionally high yields in all categories, with a good starch content.

- Benicia (S)** The latest maturing variety with an extremely high DM yield potential, is specifically recommended only for early sowing under plastic in only very mild regions to ensure the crop fully matures.
- Crescendo** A robust and reliable early maturing variety that has a good yield potential in open trials, particularly when growing conditions are limiting.
- Goldclamp** A late silking variety with a high total and good ME yield combination that needs to be grown under plastic in good maize growing areas. Early sowing and mild conditions will help achieve the target dry matter and starch contents.
- Kaukas** Bold Type recommended for both systems. This relatively early, slightly above average height variety produces the highest starch and total yields in the open plus highest starch and very good total yields under plastic.
- Klaymore** Recommended for plastic use, this tall variety matures quickly to similarly high dry matter, starch and ME contents that turn its good DM yield into high starch yields.
- Klifton** A tall variety, recommended for growing under plastic, which although having below average starch and ME yields, matures easily to produce a high starch content, indicating an underlying robustness.
- Kroesus** A tall variety that produces high DM yields particularly in the open, where it is second highest yielding. It requires good growing conditions to fully mature and so will perform best under plastic or on milder sites in the open.

- LG3193** Under plastic, this variety, achieves a very high DM content and an excellent starch content that ensures very high total, starch and ME yields, while in the open its yields remain high but is specifically recommended for milder areas to benefit quality levels.
- MAS 12A** An early maturing, average height variety. Recommended for sowing under plastic where it dries off easily with a very high starch content that creates an impressive yield performance in all three categories.
- Nescio** This relatively short variety delivers similarly average total, starch and ME yields under plastic but has proven robust, reliable and able to grow successfully in a wide range of less than ideal conditions.
- PR39G12** A very tall late maturing variety with high DM and ME yields. If grown on favourable sites with early sowing and favourable growing conditions, higher starch contents can be achieved to give higher starch yields than listed.
- Ruler** A very tall, later maturing variety producing very good total and ME yields, that will benefit from early sowing in good growing areas to optimise the starch and DM contents and further enhance yields
- Salgado** A very tall but relatively early maturing variety that has high total and ME yields, and due to its very high starch developing character, also delivers very impressive starch yields.
- Sapphire** Achieves the target DM and starch content when grown in the open under a range of average conditions and delivers similar total, starch and ME yields, typical of other Plain Type recommended varieties.

Surprise Fully recommended for both open and plastic systems. In the open it delivers very high starch yields, though its DM content will benefit from milder conditions. Under plastic it easily matures out to a high DM% and a very high starch content to create high starch yields.

Traddi CS An early maturing relatively short variety with good total and ME yields that combine with a high starch content to create an excellent starch yield performance.

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.

Artist (P) A relatively short new provisional recommendation with a high starch content that ensures a good high starch yield. The indication from the DM content is that this variety may benefit significantly from sowing in milder sites.

Gladi CS (P) Provisionally recommended for plastic use, it is of an average height and its provisional figures show it to have similarly high DM and ME yields with very good DM and starch contents.

Karimbo (P) A relatively early and short growing provisionally recommended variety that develops a good starch content and high starch yield. Although reaching the target DM content, the indication from the DM yield and ME figures suggest that it required favourable growing conditions.

- Paddy (P)** This provisionally recommended variety delivers excellent DM and ME yields plus high starch yields from relatively early short plants. Under plastic mulch, it dries down well to deliver a good starch content.
- PR39D60 (P)** This very tall and late new provisional recommendation has impressively high DM and ME yields under the plastic system and with a good starch content relative to its DM content.
- PR39V43 (P)** This tall, average maturing new provisionally recommended variety has high DM and ME yields under the plastic system and also has a good starch content and above target DM content.
- Ronaldino (P)** This new tall growing provisional recommendation produces very high total and ME yields and due to a relatively good starch content returns a good starch yield.

Outclassed Varieties

- Justina (O)** A late maturing very tall variety that needs to be early sown under plastic to achieve full maturity. Despite high DM & ME yields, problems with consistently in reaching target DM and starch contents has downgraded it to 'Outclassed'.

Growing Conditions and Variety Choice

This section provides a guide 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 1 May – 31 Oct	Trial Sites
2001	2393	Maryland
2002	2100	Maryland
2003	2338	Maryland and Comber
2004	2385	Gransha and Comber
2005	2303	Gransha and Comber
2006	2632	Gransha and Comber
2007	2375	Gransha and Comber
2008	2289	Gransha and Comber
2009	2409	Gransha and Comber
12yr Mean	2360	Average of 1997-2009

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' for maize growing. (Gransha & Maryland are trial sites close to PTS, Crossnacreevy)

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 growers needs, depends on how suitable is the growing area 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

During 2009 a number of varieties were tested 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 2011 for recommendation. The basic data are given for information purposes only.

Candidate Forage Maize Varieties in the 2009 Recommended List Trial

(None of these varieties can be considered for recommendation until 2011)

VARIETY	Test Yrs	Silking Date	Silking Height	DM Yield	DM Content	Starch Content	ME Content
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Open Establishment Trial Results 2008

			180cm	13.0 t/ha	%	%	MJ/Kg
Kougar	1	16 Aug	0	104	28	25	10.7
Kentaurus	1	11 Aug	+1	85	34	28	10.8

Plastic Mulch Trial Results 2008

			180cm	15.2 t/ha	%	%	MJ/Kg
MAS 10C	1	1 Aug	+13	113	36	36	11.0
Sunboy	1	2 Aug	+52	110	33	33	10.7
P8000	1	9 Aug	+33	107	28	29	10.8
Ambrosini	1	2 Aug	+14	101	32	34	11.0
NK Cheer	1	2 Aug	+4	96	33	35	10.8
Kougar	1	30 Jul	-16	94	35	38	10.9

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 utilization 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 between 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 criteria for the 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 criteria for the 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.

AFBI Crossnacreevy Contacts and Services

Plant Science 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

Farmers and growers wanting guidance on selection and use of varieties from these lists should contact CAFRE Technology & Business Division Services, Tel: 028 9442 6770

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 (0) (28 90) 548000

Fax: +44 (0) (28 90) 548001

Email: info@afbini.gov.uk or

trevor.gilliland@afbini.gov.uk

Applied Plant Science and Biometrics Division provides an extensive range of technical services are 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 analyses

Agri-Food and Biosciences Institute

AFBI's mission is to maintain and enhance its reputation as a world-class scientific institute, delivering proven value to Government and other customers.

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.

If you have a problem in agri-food or biosciences, AFBI offers a high quality, cost-effective solution.

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

Chief Executive's Office

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

Tel: +44 (0)28 90 255051

Fax: +44 (0)28 90 255035

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 DARD Office:

County Antrim	Ballyclare	Tel: 028 9332 2399
	Ballymoney	Tel: 028 2766 0160
County Armagh	Armagh	Tel: 028 3751 5659
	Newry	Tel: 028 3025 3310
County Down	Banbridge	Tel: 028 4062 9182
	Newtownards	Tel: 028 9181 3570
County Fermanagh	Enniskillen	Tel: 028 6632 5004
County Londonderry	Limavady	Tel: 028 7776 2521
	Magherafelt	Tel: 028 7930 2112
County Tyrone	Dungannon	Tel: 028 8775 4777
	Omagh	Tel: 028 8225 1020

Farmers, growers and processors requiring more specialist information on crops should contact:

CAFRE Technology & Business Division Services,
Crops and Horticulture Tel: 028 9442 6770
Greenmount College Fax: 028 9442 6777



Department of

**Agriculture and
Rural Development**

www.dardni.gov.uk

AN ROINN

**Talmhaíochta agus
Forbartha Tuaithe**

MINISTÉIRE O

**Fairms an
Kintra Fordèrin**

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