Grass and White Clover

Recommended List Varieties for Ireland 2015

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

CONTENTS **PAGE**

Requests for this booklet should be sent to:-

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Introduction

Perennial ryegrass, Italian ryegrass and White clover account for nearly all of the agricultural grass/clover seed sold in Ireland. Of these, perennial ryegrass is by far the most important. Other species of grass and clover are not commonly used. Individual varieties differ in performance characteristics depending on maturity group and ploidy. These differences may be further exaggerated by factors such as climate, soil type and system of farming. Increased demands on grassland with regard to early spring grass, mid-season production, extended grazing in the autumn etc., mean that care needs to be taken in the selection of suitable grass seed mixtures. All grass and clover varieties listed in this booklet have a proven record of performance over a period of years at a number of different locations, and are deemed most suitable for Irish conditions.
Growers should give preference to the Recommended List varieties unless there is strong evidence that some other variety is more suited to their conditions.

Variety Maturity Groupings

Perennial Ryegrass: - This grass species accounts for approximately 95% of forage grass seed sold in Ireland. Perennial ryegrass is grouped into three maturity groups (**early**, **intermediate** and **late**) on the basis of heading date (ear emergence).

Early varieties: - Head in the first half of May. Early perennials provide very good yields of early spring grazing and first cut silage. Stemmy re-growths in early summer can be a problem where long periods of uninterrupted growth are allowed to occur without grazing or cutting. In recent years, use of this group has declined in Ireland and sales are at a very low level.

Intermediate varieties: - Head in the second half of May and are ideal for producing high quality silage cuts in late May and mid-July. Although not bulking up as soon as early perennial varieties, overall silage yields are as good. Varieties from this group are suited to a broad range of management systems, and should be included in any seed mixture. Generally their spring growth is not as good as for early perennials, but ground cover is better.

Late varieties: - Head in the first half of June, and tend towards a prostrate growth habit. They are characterised by high tiller densities, exhibit good ground cover and are well suited to long term grazing pastures. Late varieties produce good quality silage cuts in early June and late July, and are leafy in mid summer. Generally their spring growth is not as good as for ‘Intermediates’. Under good grazing management, late perennials are very persistent and can survive very well for many years.

Italian ryegrass: - Are best suited to short-term leys of 2-3 years duration. They have early spring growth, but can be difficult to manage in mid-season because of stemmy regrowth. Italian varieties are suitable for intensive silage production and can also provide useful grazing in the spring and late autumn period. They tend to have low sward densities and are susceptible to poaching under adverse conditions.

Hybrid ryegrass: - These varieties represent the product of a cross between Italian and Perennial ryegrass types. In appearance they generally reflect one or other parental type. The Hybrid ryegrass varieties tend to yield higher than the Intermediate and Late groups of Perennial ryegrass, but lower than the Italians. Hybrids tend to be more stemmy in summer than the Intermediates and Lates, but less stemmy than the Italians.

White clovers: - Are included as a component in most grass seed mixtures for their nutritive value and their nitrogen fixing abilities. They are classified according to leaf size into very large, large, medium and small leaved types. Very large and large leaved varieties are relatively tolerant to nitrogen fertiliser usage and compete well with companion grasses, making them suitable for silage production. Medium leaved varieties are more suited to grazing, but can also be used in silage mixes. Small leaved varieties are suitable only for grazing.

Ploidy

Recently **diploid** varieties have tended to dominate mixtures in Ireland, but **tetraploid** varieties are an important component of grass seed mixtures. Compared to diploids they generally have higher quality and are more palatable to livestock (higher intake), and are more tolerant to drought. However, they generally have considerably lower tiller densities resulting in more open swards. Dry matter content also tends to be lower compared with diploids. On heavy soils subject to poaching, persistence may also suffer. Seeding rates for tetraploid grasses will need to be higher because of their larger seed size. In this publication, (T) denotes tetraploid varieties, all other varieties being diploid.

IMPORTANT NOTICE: - The Department of Agriculture, Food and the Marine (DAFM) has taken all due care in evaluating the performance in Ireland of the listed varieties, for yield, heading date, ground cover and other agronomic characters (for a minimum period of 3 years) over a range of locations, soils and environmental conditions. DAFM cannot, however accept responsibility for any loss or inconvenience arising from any future variation in absolute or relative varietal performance.

Protocol for Recommended List

Trials and trial sites

Varieties are evaluated over a minimum of two separate sowings, with each sowing being harvested for two years after the sowing year. Trials are conducted at Backweston Farm, Leixlip, Co. Kildare (Headquarters); Fermoy, Co. Cork; Raphoe, Co. Donegal; Athenry, Co. Galway, and Piltown, Co. Kilkenny. All new varieties are assessed against control varieties within their own maturity groups. Trials are grown on very good quality mineral soils in a manner conducive to selection of varieties most suited to good commercial farming practices.

Grasses

Perennial ryegrass (Early, Intermediate and Late heading groups), Italian ryegrass and Hybrid ryegrass trials are sown in May/August and establish during for the remainder of that year. (In recent years, all the sowings were carried out in the May period). The trials are then assessed over the following two-year period under two different systems; a 6 cut system and an 8 to 10 cut system, using a trial-plot harvesting machine. Individual trials remain on one system for the two-year period. The 6 cut system is referred to in this publication as the **General Purpose/2-Cut Silage** system and involves one spring grazing cut, followed by two silage cuts and then three grazing cuts.

The 8 – 10 cut system is referred to in this publication as the **Simulated Grazing** (frequent cutting) system and involves that number of cuts taken at periods corresponding to normal commercial rotational grazing practice. This system was introduced by DAFM in its 2010 sowings. Its purpose is to provide variety performance data suitable for situations where grass is grazed throughout the growing season. Results from the 2010, 2011 and 2012 sowings of this trial are presented in this publication on the Main Tables. Where a variety has data from only 2 harvest years, the results are provisional and this is indicated by brackets ( ) on the Tables. The dependability of this information will increase in coming years as the data for more varieties will be based on four or more harvest years.

White clover varieties are sown in a mixture with an intermediate perennial ryegrass in May/August, and following an establishment year are assessed over the subsequent two years under a 6-7 cut system. White clovers are tested under a low fertiliser nitrogen input regime, where the total yearly application is 50kg Nitrogen per hectare (50kg N/ha) applied in the spring.

Heading date is based on the first heading date in spring. It is determined by examination of individual grass plants sown in the previous summer/autumn. It is carried out in dedicated trials over a number of years at different sites. Heading date indicates the earliness or lateness of a variety in reaching maturity in spring. Dates listed

should be used as a guide only as actual heading date will vary with location, climate and date of the last grazing.

Total yield for each variety is given as a percentage of control varieties indicated. In the tables, the mean relative yield for these control varieties does not always equate to 100, as historically not all control varieties were sown in each year from which data has been abstracted. The tables also show the average yields in tonnes dry matter per hectare (tDM/ha) for the control varieties. Annual yield tDM/ha can vary considerably between years and trial sites, due mainly to differences in soil quality and climatic conditions. Where grass is commercially grown on lower quality land, considerably lower annual yields can be expected.

Ground Cover Score data presented in the Main Tables indicates the degree of ground cover or sward density during the winter (November – March) at the end of the second harvest year, and is based on a visual assessment. A low figure indicates a very open sward, which may be prone to poaching or trafficability problems. However, since most varieties are sown as a mixture, the degree that this will influence the longevity of the sward can be minimised by including varieties with high ground cover scores.

Spring growth production figures are given for all ryegrass varieties. These figures are important indicators of early grass production and are expressed as a percentage of the control yields over the same period. Spring growth data is based on the yield of cuts taken before mid-April. (These are cut 1 in the General Purpose system, and cut 1 or cuts 1 and 2 in the Simulated Grazing (frequent cutting) system, depending on earliness of growth). Spring growth data is influenced by growing conditions during the period from the latest autumn cut in the previous harvest year. Yearly variations in those conditions can be considerable and can significantly influence varietal performance in individual years. Accordingly, particularly for this trait, an accurate assessment of performance requires use of data obtained over several harvest years.

Summer growth figures in the Simulated Grazing (frequent cutting) system indicate production differences between varieties in this period. They are expressed as a percentage of the control yields over the same period and are presented in the Main Tables. Summer growth data is based on the combined yield of the cuts taken from mid April to mid August.

First and Second Cut Silage growth figures in the General Purpose system indicate production differences between varieties when they are grown for this purpose. First Cut Silage is based on approximately six weeks growth after an initial spring growth cut is taken in early April. Second Cut Silage is based on approximately six to seven weeks growth after the harvesting of the First Cut Silage. The figures are expressed as a percentage of the control yields over the same period.

Autumn growth figures indicate production differences between varieties in this period. They are expressed as a percentage of the control yields. Autumn growth data is based on the combined yield of cuts taken from mid-August to late October.

Grass Quality

Two measures of grass quality are presented: Dry Matter Digestibility (DMD) and Water Soluble Carbohydrate content (WSC). The results (presented on the Main Tables) are based on testing of plot samples from cuts taken during the growing season at one trial site. Forage will provide more energy to the animal if its DMD is high. High DMD forage increases the DM intake of animals where feeding is not restricted. This increase in intake has a big effect on animal performance. Actual DMD levels can vary considerably and are influenced by several factors including growth stage and climate. The relative DMD values for individual varieties are presented in the Main Tables. Small differences in these values are considered relevant. The Water Soluble Carbohydrate content of grass is a measure of its 'sugar content'. Actual WSC levels vary widely, and are greatly influenced by the intensity and duration of sunlight in the preceding hours and days. The relative WSC values for individual varieties are presented in the Tables. Higher WSC levels are considered beneficial to animal performance. Large differences in the WSC values presented are considered relevant.

DAFM acknowledge the assistance of Teagasc, Grange, in carrying out laboratory analysis of grass samples for quality determinations.

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Teagasc - Pasture Profit Index 2015

Introduction to the Teagasc Pasture Profit Index (PPI) 2015

This is the first year when the 2015 DAFM Recommended List for Grass and White Clover includes the Teagasc Pasture Profit Index (PPI) – shown on pages 26 and 27. The Teagasc PPI economic values are based on variety performance data from the DAFM Recommended List 2015, relating to the Simulated Grazing protocol. Teagasc is responsible for economic values attributed to varieties.

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Summary of all Recommended List Varieties 2015 of Italian Ryegrass, Hybrid Ryegrass and White Clover varieties in alphabetical order

Italian Ryegrass	Group	Breeder	Origin	Year 1st Listed
Davinci	Italian	ILVO	BE	2011
Fabio (T)	Italian	DSV	DE	1998
Nabucco (T)	Italian	DSV	DE	2007

Hybrid Ryegrass	Group	Breeder	Origin	Year 1st Listed
Aberecho (T)	Hybrid	IBERS	UK	2013
Alliance (T)	Hybrid	Limagrain	NL	2011
Pirol	Hybrid	DSV	DE	2009

White Clover	Group	Breeder	Origin	Year 1st Listed
Aberherald	Medium	IBERS	UK	2003
Alice	Large	IBERS	UK	1995
Avoca	Medium	Teagasc	IRL	1995
Barblanca	Large	Barenbrug	NL	2009
Buddy	Medium	Teagasc	IRL	2015
Chieftain	Medium	Teagasc	IRL	2005
Crusader	Medium	Barenbrug	NL	2009
Iona	Medium	Teagasc	IRL	2014

In the above tables and on the table on page 10, varieties are listed in alphabetical order.

Summary of all Recommended List Varieties 2015 of Perennial ryegrass (Early, Intermediate and Late varieties) in alphabetical order

Variety Name	Maturity Group	Breeder	Origin	Year 1st Listed
Aberchoice	Late	IBERS	UK	2012
Abercraigs (T)	Late	IBERS	UK	1999
Abergain (T)	Late	IBERS	UK	2013
Abermagic	Intermediate	IBERS	UK	2010
Aberplentiful (T)	Late	IBERS	UK	2014
Aspect (T)	Late	DLF	DK	2014
Astonenergy (T)	Late	DSV	DE	2015
Boyne	Intermediate	DLF	DK	2013
Carraig (T)	Intermediate	Teagasc	IRL	2012
Clanrye	Late	AFBI	NI	2014
Delphin (T)	Late	NPZ	DE	2002
Drumbo	Late	AFBI	NI	2011
Dunluce (T)	Intermediate	AFBI	NI	2007
Genesis	Early	Teagasc	IRL	2012
Giant (T)	Intermediate	Teagasc	IRL	2011
Glenroyal	Late	Teagasc	IRL	2015
Glenveagh	Late	Teagasc	IRL	2012
Kintyre (T)	Late	Teagasc	IRL	2012
Magician (T)	Intermediate	Teagasc	IRL	1999
Majestic	Late	Teagasc	IRL	2012
Mezquita	Late	DSV	DE	2008
Moyola	Early	AFBI	NI	2012
Navan (T)	Late	AFBI	NI	1999
Piccadilly	Late	DSV	DE	2012
Rodrigo	Intermediate	DSV	DE	2013
Rosetta	Intermediate	AFBI	NI	2013
Seagoe (T)	Intermediate	AFBI	NI	2014
Solas (T)	Late	Teagasc	IRL	2015
Solomon	Intermediate	Teagasc	IRL	2011
Stefani	Late	DLF	DK	2012
Trend (T)	Intermediate	NPZ	DE	2007
Twymax (T)	Late	CPB Twyford	UK	2007
Tyrella	Late	AFBI	NI	2008

INTRODUCTION TO RECOMMENDED LIST 2015 MAIN TABLES

In the main tables on pages 11 - 15, varieties within each group are listed in order of **heading date and ploidy**, with those heading earliest at the top of the list and those with the latest heading date at the bottom.

Appendices 1 – 4 provide supporting information.

Recommended Italian, Hybrid and Early Perennial Ryegrass Varieties 2015

General Purpose (including 2 silage cuts) trial data is presented in the three Tables below.

Italian Ryegrass

Variety Name	Heading Date	Total Yield	Ground Cover 1-9	Spring Growth	Silage Yield	*DMD %	*WSC %
Control Mean t DM/ha		*16.2*	*5.1*	*1.4*	*8.6*	*78.2*	*19.2*
Fabio (T)	18-May	**99**	4.9	98	100	100.7	101
Nabucco (T)	20-May	**101**	5.1	100	101	100.1	100
Davinci	22-May	**102**	5.5	103	99	98.6	85

Hybrid Ryegrass

Variety Name	Heading Date	Total Yield	Ground Cover 1-9	Spring Growth	Silage Yield	*DMD %	*WSC %
Control Mean t DM/ha		*16.0*	*5.3*	*1.2*	*8.6*	*79.2*	*18.9*
Aberecho (T)	18-May	**99**	5.6	95	102	(104.7)	(129)
Alliance (T)	20-May	**102**	5.2	100	103	100.7	107
Pirol	22-May	**103**	5.6	98	105	(98.0)	(90)

( ) indicates provisional data.

Early Perennial Ryegrass

Variety Name	Heading Date	Total Yield	Ground Cover 1-9	Spring Growth	Autumn Growth	*DMD %	*WSC %
Control Mean t DM/ha		*14.8*	*6.0*	*1.3*	*3.1*	*80.4*	*18.4*
Moyola	11-May	**105**	6.4	109	107	100.0	102
Genesis	12-May	**103**	6.7	118	102	99.7	103

*DMD and WSC controls data is shown as g/100g on this Table.

Italian, Hybrid and Early PRG variety descriptions can be found on Page 16 & 17.

Control varieties can be found in Appendix 1 Page 22.

Recommended Intermediate and Late Perennial Ryegrass Varieties 2015

The main tables on pages 13 - 15 include data for those varieties grown under both the General Purpose and the Simulated Grazing (frequent cutting) protocols. For yield and ground cover, separate data is presented for each protocol, while for quality characteristics (dry matter digestibility and water soluble carbohydrate contents) one set of data is presented.

Data for the General Purpose protocol was collected from trials completed in years up to March 2014, after the possible effects of winter frosts had been assessed re Ground Cover.

Data for the Simulated Grazing protocol was collected from the same years and also from trials which were due for completion in March 2015. This was necessary due to a shortage of earlier year's data for several varieties regarding this recently introduced protocol.

All varieties included in the recommended list have completed trials based on a minimum of two sowing years (4 harvest years). In cases where particular data presented is based on only one sowing (2 harvest years) and is accordingly less dependable; that data is indicated by the use of brackets ( ) surrounding the number and it should be treated as provisional. In this regard, spring growth data shown within brackets should be treated with extra caution, because this trait is very variable due to the likely influences of the climate at different stages in the growth period (from the last cutting in autumn until the spring cutting).

Recommended Intermediate Diploid & Tetraploid Perennial Ryegrass Varieties 2015

Variety Name	Heading Date	General Purpose (2-Cut Silage)						Simulated Grazing					*DMD %	*WSC %
		Total Rel. Yield GP	Ground Cover 1-9	Spring Growth	1st Cut Silage	2nd Cut Silage	Autumn Growth	Total Rel. Yield SG	Ground Cover 1-9	Spring Growth	Summer Growth	Autumn Growth		
Control Mean (t DM/ha)		*14.4*	*6.4*	*1.0*	*4.8*	*3.8*	*3.1*	*(10.8)*	*(6.3)*	*(1.3)*	*(7.2)*	*(2.4)*	*82.7*	*21.5*
Boyne	22-May	**104**	6.8	115	110	100	99	**(98)**	(6.9)	(98)	(99)	(93)	97.7	85
Solomon	23-May	**100**	6.7	122	104	92	96	**97**	6.8	109	96	94	98.6	89
Rosetta	24-May	**101**	6.6	123	104	91	100	**(101)**	(6.5)	(124)	(99)	(96)	99.3	92
Rodrigo	27-May	**98**	6.8	106	102	93	94	**-**	-	-	-	-	98.6	85
Abermagic	30-May	**100**	6.8	93	95	102	107	**105**	6.6	100	104	111	100.8	113
Giant (T)	20-May	**100**	6.6	108	106	90	96	**101**	6.4	96	103	96	99.3	95
Magician (T)	22-May	**100**	6.1	110	105	97	96	**99**	5.9	106	98	97	99.6	93
Carraig (T)	24-May	**102**	6.7	115	108	95	98	**98**	6.3	98	100	95	99.5	97
Trend (T)	24-May	**102**	6.0	104	111	96	97	**97**	5.9	90	100	92	99.8	96
Seagoe (T)	29-May	**101**	6.0	108	109	99	97	**(99)**	(6.2)	(92)	(101)	(97)	100.3	99
Dunluce (T)	30-May	**103**	6.1	100	95	111	104	**101**	5.9	98	101	103	101.1	105

Data based on the mean of Diploid & Tetraploid Control varieties.
*DMD and WSC controls data is shown as g/100g on this Table and have been taken from both the GP and SG Trials.
Ground Cover values for Simulated Grazing are derived from Year 2 values in Appendix 3.
Intermediate Diploid and Tetraploid PRG variety descriptions can be found on pages 17 & 18.

Recommended Late Diploid Perennial Ryegrass Varieties 2015

Variety Name	Heading Date	General Purpose (2-Cut Silage)						Simulated Grazing					*DMD %	*WSC %
		Total Rel. Yield GP	Ground Cover 1-9	Spring Growth	1st Cut Silage	2nd Cut Silage	Autumn Growth	Total Rel. Yield SG	Ground Cover 1-9	Spring Growth	Summer Growth	Autumn Growth		
Control Mean (t DM/ha)		*14.1*	*6.4*	*1.0*	*4.5*	*3.8*	*3.1*	*10.2*	*6.4*	*1.1*	*7.0*	*2.1*	*82.7*	*21.3*
Stefani	01-Jun	**99**	6.8	99	101	98	98	**(101)**	(7.0)	(105)	(100)	(100)	99.5	93
Majestic	02-Jun	**100**	6.8	101	97	96	103	**(104)**	(7.3)	(115)	(102)	(107)	98.7	91
Glenveagh	03-Jun	**99**	7.4	87	101	97	102	**(103)**	(7.4)	(111)	(102)	(103)	99.2	96
Piccadilly	03-Jun	**100**	6.9	98	107	94	101	**(102)**	(7.2)	(108)	(102)	(98)	98.6	90
Tyrella	04-Jun	**97**	6.6	116	101	90	95	**98**	6.7	114	96	97	99.7	101
Glenroyal	05-Jun	**100**	7.0	92	96	103	103	**(104)**	(7.3)	(104)	(103)	(108)	100.1	99
Clanrye	06-Jun	**102**	7.0	92	98	111	98	**-**	-	-	-	-	99.2	96
Mezquita	06-Jun	**97**	7.1	93	97	101	96	**99**	7.5	103	99	97	98.8	91
Drumbo	07-Jun	**98**	6.7	104	92	102	102	**102**	6.8	105	101	104	100.7	107
Aberchoice	10-Jun	**102**	6.7	98	93	112	105	**107**	6.6	104	107	109	101.6	121

Data based on the mean of Diploid & Tetraploid Control varieties.
*DMD and WSC controls data is shown as g/100g on this Table and have been taken from both the GP and SG Trials.
Ground Cover values for Simulated Grazing are derived from Year 2 values in Appendix 3.
Late Diploid PRG variety descriptions can be found on page 18.

Recommended Late Tetraploid Perennial Ryegrass Varieties 2015

Variety Name	Heading Date	General Purpose (2-Cut Silage)						Simulated Grazing						
		Total Rel. Yield GP	Ground Cover 1-9	Spring Growth	1st Cut Silage	2nd Cut Silage	Autumn Growth	Total Rel. Yield SG	Ground Cover 1-9	Spring Growth	Summer Growth	Autumn Growth	*DMD %	*WSC %
Control Mean (t DM/ha)		*14.1*	*6.4*	*1.0*	*4.5*	*3.8*	*3.1*	*10.2*	*6.4*	*1.1*	*7.0*	*2.1*	*82.7*	*21.3*
Delphin (T)	02-Jun	**104**	5.9	108	105	102	103	**102**	5.6	98	103	100	100.5	101
Astonenergy (T)	02-Jun	**100**	5.7	93	103	98	103	**103**	5.7	96	103	107	102.0	113
Abercraigs (T)	04-Jun	**103**	6.2	107	102	104	102	**101**	6.3	98	102	98	100.5	106
Abergain (T)	05-Jun	**107**	6.3	125	106	106	109	**107**	6.1	114	106	107	102.1	116
Aspect (T)	05-Jun	**(102)**	(6.7)	(107)	(96)	(107)	(102)	**(104)**	(6.7)	(105)	(104)	(101)	101.2	106
Navan (T)	06-Jun	**102**	6.3	89	96	107	109	**104**	6.2	98	103	110	100.7	106
Twymax (T)	07-Jun	**101**	6.4	89	98	110	100	**(101)**	(6.1)	(84)	(105)	(97)	100.7	107
Kintyre (T)	08-Jun	**104**	6.0	101	97	110	110	**105**	6.5	107	102	113	101.0	104
Aberplentiful (T)	08-Jun	**106**	6.2	105	98	108	110	**(104)**	(6.5)	(99)	(104)	(109)	100.9	107
Solas (T)	10-Jun	**105**	6.4	100	96	112	109	**-**	-	-	-	-	100.9	104

Data based on the mean of Diploid & Tetraploid Control varieties.
*DMD and WSC controls data is shown as g/100g on this Table and have been taken from both the GP and SG Trials.
Ground Cover values for Simulated Grazing are derived from Year 2 values in Appendix 3.
Late Tetraploid PRG variety descriptions can be found on page 19.

GRASS VARIETY DESCRIPTIONS

Introduction
The variety descriptions in this booklet are based on the information provided in the Main Tables for the General Purpose 6 cut system. Information in Main Tables relating to the Simulated Grazing (frequent cutting) 8-10 cut system for Intermediate and Late perennial ryegrass groups is provisional for many varieties, as it is based on 2 harvest years, rather than a minimum of 4 harvest years.

The descriptions are generally confined to pointing out cases where a variety's performance relative to other varieties in the same group differs considerably regarding a particular characteristic. The descriptions are not intended to give an overview of the value of a variety as regards all of its characteristics. They do not include reference to silage yields. All the varieties on the recommended list are those that performed best in trials conducted by the Department of Agriculture, Food and the Marine in Ireland and for which commercial quantities of seed have been produced by the seed industry. The trials included large numbers of varieties put forward by breeders from many countries.

In the descriptions below varieties are listed in heading date order within each category/group.

ITALIAN RYEGRASS:

Fabio (T): A tetraploid variety. Dry matter digestibility is very good.

Nabucco (T): A tetraploid variety with well balanced production over the growing period.

Davinci: Its annual yield and ground cover are the best of the Italian Group. Dry matter digestibility is moderate.

HYBRID RYEGRASS:

Aberecho (T): Its quality results are promising but are provisional.

Alliance (T): Good annual yield. Ground cover is the poorest in the group. Spring growth is very good. Dry matter digestibility is good.

Pirol: Good annual yield with very good silage yield. Its quality results are moderate but are provisional.

EARLY PERENNIAL RYEGRASS:

Moyola: Good annual yield and autumn growth.

Genesis: Excellent spring growth.

INTERMEDIATE PERENNIAL RYEGRASS: DIPLOIDS

Boyne: Highest total yield and very good spring growth. Its ground cover score is very good. Dry matter digestibility is moderate.

Solomon: Total yield is good. Spring growth is excellent.

Rosetta: Very good total yield. Spring growth is excellent.

Rodrigo: Very good ground cover score. Good spring growth. Total yield is moderate.

Abermagic: Good annual yield and very good autumn growth. Ground cover and dry matter digestibility are very good. Its heading date is the latest in the group.

INTERMEDIATE PERENNIAL RYEGRASS: TETRAPLOIDS

Giant: Spring growth is very good. Ground cover is very good. The variety is becoming outclassed by newer improved varieties.

Magician: Spring growth is very good.

Carraig: Good total yield combined with excellent spring growth. Ground cover is very good.

Trend: Its total yield and spring growth are good. The variety is becoming outclassed by newer improved varieties.

Seagoe: Good total yield combined with very good spring yield. Dry matter digestibility is good. In the 2016 RL the variety may be considered as 'becoming outclassed'.

Dunluce: Dry matter digestibility is very good. Its autumn growth is the best of the tetraploids. It is the latest heading tetraploid variety in the group.

LATE PERENNIAL RYEGRASS: DIPLOIDS

Stefani: Good annual and spring yield. Good ground cover.

Majestic: Good annual, spring and autumn yield. Good ground cover.

Glenveagh: Good annual yield. Its ground cover is excellent.

Piccadilly: Good annual yield and spring growth. Good ground cover.

Tyrella: Its spring growth is excellent and is much better than that of other late diploid varieties. Autumn growth is moderate.

Glenroyal: A new variety with good annual yield and very good ground cover.

Clanrye: Very good annual yield and ground cover.

Mezquita: Its ground cover is very good. Autumn growth is moderate. The variety is becoming outclassed by newer improved varieties.

Drumbo: Spring growth is very good. Autumn growth is good. Dry matter digestibility is very good.

Aberchoice: Annual yield and autumn yield are very good. Dry matter digestibility is excellent, being the highest in the group.

LATE PERENNIAL RYEGRASS: TETRAPLOIDS

Delphin: Annual yield and spring growth are good. Dry matter digestibility is very good.

Astonenergy: A new variety on the list. Good autumn growth. Dry matter digestibility is excellent.

Abercraigs: Annual yield and spring growth are good. Dry matter digestibility is very good. The variety is becoming outclassed by newer improved varieties.

Abergain: Highest annual yield. Spring growth is exceptional, being considerably better than other varieties. Dry matter digestibility is excellent.

Aspect: Good annual yield and spring yield. Ground cover is the best of the late tetraploids. Dry matter digestibility is very good.

Navan: Good annual yield. Autumn growth and dry matter digestibility are very good.

Twymax: Ground cover is one of the highest of the tetraploids. Very good dry matter digestibility. In the 2016 RL the variety may be considered as 'becoming outclassed'.

Kintyre: Annual yield, autumn growth and dry matter digestibility are all very good.

Aberplentiful: Very good annual yield. Spring growth is good and autumn growth is very good. Dry matter digestibility is very good.

Solas: A new variety with very good annual yield. Autumn growth is very good. Dry matter digestibility is very good.

Recommended White Clover Varieties 2015

Variety Name	Total Yield	Leaf Size*	Clover %	Year 1st Listed	Breeder	Origin
Control Mean: (t DM/ha)	*9.1*					
Barblanca	**103**	Large (0.78)	50	2009	Barenbrug	NL
Alice	**102**	Large (0.76)	49	1995	IBERS	UK
Chieftain	**100**	Medium (0.68)	47	2005	Teagasc	IRL
Buddy	**101**	Medium (0.63)	45	2015	Teagasc	IRL
Avoca	**103**	Medium (0.61)	47	1995	Teagasc	IRL
Iona	**96**	Medium (0.59)	47	2014	Teagasc	IRL
Crusader	**96**	Medium (0.57)	44	2009	Barenbrug	NL
Aberherald	**98**	Medium (0.55)	45	2003	IBERS	UK

In the table above varieties are listed in order of decreasing leaf size.

*Values in brackets indicate leaf size compared to the variety Aran (i.e. Aran = 1.00), based on data from UK D.U.S. tests.

Control varieties are shown in Appendix 1 on page 22.

WHITE CLOVER VARIETY DESCRIPTIONS

Barblanca: A large leaved variety. Very good annual yield. Considered suitable for silage production and unsuitable for hard grazing.

Alice: A large leaved variety. Very good annual yield. Considered suitable for silage production and unsuitable for hard grazing.

Chieftain: A medium leaved variety with good yield. It is the largest of the medium-leaved category. Considered suitable for grazing.

Buddy: A new variety on the list. A medium leaved variety with good yield. Considered suitable for grazing.

Avoca: A medium leaved variety with very good yield. It competes well with the accompanying grass. Considered suitable for grazing.

Iona: A medium leaved variety. It competes well with the accompanying grass. Considered suitable for grazing.

Crusader: A medium leaved variety. Considered suitable for grazing.

Aberherald: A medium leaved variety. Considered suitable for grazing.

Appendix 1: Control varieties

	EARLY PRG* Control Varieties
Trial Sown 2006	Anaconda (T), January
Trial Sown 2008	Anaconda (T), January

	INTERMEDIATE PRG* Control Varieties
Trial Sown 2010	Aberstar, Premium, Shandon, Magician (T), Malone (T), Trend (T)
Trial Sown 2011	Premium, Abermagic, Dunluce (T), Magician (T)
Trial Sown 2012	Premium, Abermagic, Dunluce (T), Magician (T)

	LATE PRG* Control Varieties
Trial Sown 2010	Denver, Mezquita, Tyrella, Abercraigs (T), Delphin (T), Glencar (T)
Trial Sown 2011	Soriento, Tyrella Delphin (T), Navan (T)
Trial Sown 2012	Mesquita, Tyrella Delphin (T), Navan (T)

	ITALIAN Control Varieties
Trial Sown 2007	Aberepic, Fabio (T), Nabucco (T)
Trial Sown 2009	Aberepic, Fabio (T), Nabucco (T)

	HYBRID Control Varieties
Trial Sown 2007	Alliance (T), Ligunda, Motivel (T)
Trial Sown 2009	Abereve (T), Marmota (T), Pirol, Redunca (T)

	WHITE CLOVER Control Varieties
Trial Sown 2006	Aberherald, Alice, Aran, Avoca
Trial Sown 2008	Aberherald, Alice, Aran, Avoca
Trial Sown 2010	Aberherald, Alice, Aran, Avoca

* 'PRG' is used to indicate 'Perennial Ryegrass'.

Appendix 2: General Purpose - Silage Yield (t DM/ha)[1]

Variety Name	Heading Date	1st Cut Silage (t DM/ha)	2nd Cut Silage (t DM/ha)
Intermediate PRG Group			
Control Mean (t DM/ha)		4.801	3.809
Boyne	22-May	5.286	3.823
Solomon	23-May	5.014	3.519
Rosetta	24-May	5.002	3.452
Rodrigo	27-May	4.878	3.526
Abermagic	30-May	4.557	3.884
Giant (T)	20-May	5.094	3.424
Magician (T)	22-May	5.053	3.688
Carraig (T)	24-May	5.176	3.611
Trend (T)	24-May	5.320	3.673
Seagoe (T)	29-May	5.248	3.760
Dunluce (T)	30-May	4.579	4.240
Late PRG Group			
Controls Mean (t DM/ha)		**4.547**	**3.769**
Stefani	01-Jun	4.597	3.687
Majestic	02-Jun	4.427	3.602
Glenveagh	03-Jun	4.573	3.654
Piccadilly	03-Jun	4.864	3.545
Tyrella	04-Jun	4.570	3.404
Glenroyal	05-Jun	4.381	3.887
Clanrye	06-Jun	4.441	4.169
Mezquita	06-Jun	4.423	3.816
Drumbo	07-Jun	4.160	3.841
Aberchoice	10-Jun	4.228	4.207
Delphin (T)	02-Jun	4.782	3.826
Astonenergy (T)	02-Jun	4.665	3.689
Abercraigs (T)	04-Jun	4.653	3.936
Abergain (T)	05-Jun	4.795	3.999
Aspect (T)	05-Jun	4.374	4.042
Navan (T)	06-Jun	4.368	4.049
Twymax (T)	07-Jun	4.472	4.135
Kintyre (T)	08-Jun	4.401	4.147
Aberplentiful (T)	08-Jun	4.463	4.086
Solas (T)	10-Jun	4.341	4.211

[1]Data relating to this table is incorporated in the main tables on pages 13 - 15.

Appendix 3: Simulated Grazing (frequent cutting) - Yield and Ground Cover Data[2]

Variety Name	Heading Date	Spring Yield (t DM/ha)	Summer Yield (t DM/ha)	Autumn Yield (t DM/ha)	Ground Cover 1-9. End of Harvest Year 1	Ground Cover 1-9. End of Harvest Year 2
Intermediate PRG Group						
Control Mean (t DM/ha)		**1.289**	**7.192**	**2.368**	**6.567**	**5.849**
Boyne	22-May	1.257	7.118	2.213	6.861	6.454
Solomon	23-May	1.403	6.931	2.232	6.745	6.324
Rosetta	24-May	1.596	7.139	2.269	6.843	6.066
Rodrigo	27-May	-	-	-	-	-
Abermagic	30-May	1.287	7.481	2.624	7.027	6.132
Giant (T)	20-May	1.238	7.425	2.262	6.377	6.021
Magician (T)	22-May	1.362	7.072	2.290	6.118	5.492
Carraig (T)	24-May	1.257	7.160	2.254	6.301	5.891
Trend (T)	24-May	1.156	7.181	2.181	5.774	5.496
Seagoe (T)	29-May	1.185	7.277	2.303	6.399	5.761
Dunluce (T)	30-May	1.266	7.269	2.441	6.142	5.527
Late PRG Group						
Controls Mean (t DM/ha)		**1.105**	**6.974**	**2.148**	**6.473**	**5.991**
Stefani	01-Jun	1.156	6.987	2.158	6.768	6.539
Majestic	02-Jun	1.266	7.103	2.302	7.310	6.852
Glenveagh	03-Jun	1.229	7.132	2.217	7.310	6.935
Piccadilly	03-Jun	1.191	7.091	2.114	7.018	6.706
Tyrella	04-Jun	1.256	6.706	2.085	6.796	6.233
Glenroyal	05-Jun	1.154	7.168	2.326	7.393	6.789
Clanrye	06-Jun	-	-	-	-	-
Mezquita	06-Jun	1.138	6.898	2.078	7.218	6.980
Drumbo	07-Jun	1.165	7.025	2.226	6.920	6.329
Aberchoice	10-Jun	1.146	7.470	2.338	6.698	6.134
Delphin (T)	02-Jun	1.079	7.196	2.158	5.611	5.194
Astonenergy (T)	02-Jun	1.060	7.187	2.299	5.651	5.371
Abercraigs (T)	04-Jun	1.084	7.103	2.101	6.184	5.868
Abergain (T)	05-Jun	1.260	7.417	2.303	6.323	5.705
Aspect (T)	05-Jun	1.161	7.279	2.178	6.846	6.293
Navan (T)	06-Jun	1.084	7.172	2.363	6.333	5.831
Twymax (T)	07-Jun	0.931	7.350	2.090	6.221	5.684
Kintyre (T)	08-Jun	1.177	7.142	2.436	6.476	6.051
Aberplentiful (T)	08-Jun	1.092	7.250	2.349	6.028	6.037
Solas (T)	10-Jun	-	-	-	-	-

[2] Data relating to this table is incorporated in the main tables on page 13 - 15.
The Ground Cover values in this Appendix are based on the actual scores recorded, whereas those values in the main tables on pages 13 - 15 are the Appendix 3 values multiplied by a factor of 1.07 to facilitate comparisons across earlier years having only the GP trials.

Appendix 4: Simulated Grazing (frequent cutting) - Dry Matter Digestibility (DMD) Data[3]

Variety Name	Heading Date	DMD 1	DMD 2	DMD 3	DMD 4	DMD 5	DMD 6	DMD Avr
Intermediate PRG Group								
2011 Control Mean DMD (g/1000g)		856.3	853.0	823.7	826.1	819.6	819.9	**833.1**
Boyne	22-May	835.9	833.2	806.5	807.8	801.6	798.5	**813.9**
Solomon	23-May	854.6	843.1	808.0	819.6	801.7	802.1	**821.5**
Rosetta	24-May	847.5	848.6	822.8	825.5	817.5	818.9	**830.1**
Rodrigo	27-May	-	-	-	-	-	-	**-**
Abermagic	30-May	865.7	860.7	825.1	830.8	823.9	834.5	**840.1**
Giant (T)	20-May	851.5	859.8	814.4	823.7	816.4	815.3	**830.2**
Magician (T)	22-May	854.2	853.3	818.8	822.2	818.9	815.4	**830.5**
Carraig (T)	24-May	861.9	850.6	804.8	826.4	805.3	806.6	**826.0**
Trend (T)	24-May	852.1	850.7	821.0	829.8	814.7	821.7	**831.7**
Seagoe	29-May	861.3	858.4	823.1	828.1	821.3	825.0	**836.2**
Dunluce (T)	30-May	860.0	855.9	840.9	831.8	830.6	823.7	**840.5**
Late PRG Group								
2011 Controls Mean DMD (g/1000g)		856.7	861.4	831.1	807.3	811.0	815.0	**830.4**
Stefani	01-Jun	848.4	850.2	821.1	819.3	816.1	805.7	**826.8**
Majestic	02-Jun	843.7	843.3	821.7	812.4	811.1	803.1	**822.5**
Glenveagh	03-Jun	848.4	850.0	821.4	806.8	805.0	801.8	**822.2**
Piccadilly	03-Jun	842.8	847.4	822.8	800.6	800.5	804.4	**819.8**
Tyrella	04-Jun	853.4	860.7	826.5	810.4	813.5	808.3	**828.8**
Glenroyal	05-Jun	849.6	854.2	828.0	814.1	810.4	811.0	**827.9**
Clanrye	06-Jun	-	-	-	-	-	-	**-**
Mezquita	06-Jun	845.2	852.2	827.3	798.4	803.8	803.1	**821.7**
Drumbo	07-Jun	848.9	862.4	848.6	819.7	832.4	823.1	**839.2**
Aberchoice	10-Jun	861.7	875.0	855.2	818.4	829.3	824.9	**844.1**
Delphin (T)	02-Jun	861.3	864.1	833.7	809.0	808.6	818.9	**832.6**
Astonenergy (T)	02-Jun	870.8	876.9	845.1	824.3	837.4	826.6	**846.9**
Abercraigs (T)	04-Jun	859.2	869.7	834.5	809.7	818.3	818.0	**834.9**
Abergain (T)	05-Jun	871.0	874.4	844.5	830.8	831.6	830.3	**847.2**
Aspect (T)	05-Jun	870.6	873.7	834.6	816.6	823.6	822.3	**840.2**
Navan (T)	06-Jun	859.9	864.1	836.8	815.7	821.0	823.6	**836.8**
Twymax (T)	07-Jun	867.3	871.4	841.5	809.2	817.6	817.3	**837.4**
Kintyre (T)	08-Jun	851.8	863.6	842.2	815.2	828.8	823.8	**837.5**
Aberplentiful (T)	08-Jun	864.5	869.3	838.4	817.6	820.3	822.9	**838.8**
Solas (T)	10-Jun	-	-	-	-	-	-	-

[3] Data relating to this table is incorporated with data from the 'General Purpose' trials in main tables on pages 13 – 15.

DMD1 – DMD6 shown in the above table are the DMD results for samples taken from the different cuts during the growing season. They correspond approximately with the months April to September.

Teagasc - Pasture Profit Index 2015

Variety Details			Pasture Profit Index Sub-indices (€ per ha per year)						
			Dry Matter Production						Total €/ha/year
Variety	Ploidy	Heading date	Spring	Summer	Autumn	Quality	Silage	Persistency	
Abergain	T	June 5	42	50	43	58	26	-11	208
Dunluce	T	May 30	43	45	58	35	24	-11	194
Aberchoice	D	June 10	24	52	47	57	9	-5	184
Abermagic	D	May 30	47	53	78	21	13	-28	184
Kintyre	T	June 8	29	40	58	25	14	0	166
Rosetta (*)	D	May 24	97	40	39	-2	19	-28	165
Astonenergy	T	June 2	10	41	43	54	12	0	160
Seagoe (*)	T	May 29	30	45	43	13	38	-11	158
Aberplentiful (*)	T	June 8	15	44	48	30	15	0	152
Magician	T	May 22	59	37	42	-5	28	-11	150
Giant	T	May 20	39	50	39	-2	22	0	148
Trend	T	May 24	25	41	30	3	38	0	137
Navan	T	June 6	14	41	50	21	10	0	136
Aspect (*)	T	June 5	26	45	29	30	10	-5	135
Carraig	T	May 24	42	40	38	-19	31	0	132
Solomon	D	May 23	66	32	35	-30	22	0	125
Drumbo	D	June 7	27	35	35	36	-4	-11	118
Delphin	T	June 2	13	42	27	10	21	0	113
Abercraigs	T	June 4	14	38	21	17	18	0	108
Glenroyal (*)	D	June 5	25	41	46	-2	6	-11	105
Majestic (*)	D	June 2	43	38	43	-23	0	0	101
Boyne (*)	D	May 22	42	39	33	-56	41	0	99
Glenveagh (*)	D	June 3	37	39	34	-22	7	0	96
Twymax (*)	T	June 7	-11	48	20	27	17	-5	95
Stefani (*)	D	June 1	25	34	27	-9	9	0	86
Piccadilly (*)	D	June 3	31	38	22	-30	16	0	77
Tyrella	D	June 4	41	23	19	-1	0	-11	71
Mezquita	D	June 6	22	30	18	-22	6	0	54
Solas	T	June 10							
Rodrigo	D	May 27							
Clanrye	D	June 6							

Teagasc Pasture Profit Index (PPI) 2015 – (Notes and information)

The Pasture Profit Index (PPI) should be used in conjunction with good grassland management practices. The Pasture Profit Index is designed as a guide to assist in variety selection when planning to reseed. Variety selection may depend on the intended grazing management to be practiced (e.g. grazing, silage, etc.).

All data used in the compilation of this Index has been generated from data within the Simulated Grazing (frequent cutting) protocol in the Department of Agriculture, Food and the Marine (DAFM) Recommended List Trials. Only varieties that have completed a minimum of 2 harvest years in the DAFM Simulated Grazing Protocol have a PPI value assigned to them. It is advised that the PPI should be used in conjunction with the DAFM 2015 Recommended List to ensure selection of the most appropriate perennial ryegrass varieties to meet particular enterprise requirements.

Varieties marked with (*) have only one sowing year data available (two harvest years data), therefore this is provisional data. Data for Aberchoice, Kintyre, Carraig, Solomon and Drumbo were obtained from 2 different sets of trials in the same sowing year, which was a total of four harvest years. No Simulated Grazing data is yet available for Solas, Rodrigo and Clanrye, therefore, no PPI can be calculated.

Guide to reading the table:
Variety details: Variety, Ploidy (T= tetraploid; D= diploid), Heading date
PPI details (Total €/ha per year): indicates relative profitability difference when compared to the base values.
www.agresearch.teagasc.ie/moorepark/PastureProfitIndex/index.asp for more details on the PPI.
Persistency is modelled over 12 years which is in line with industry practice (Creighton *et al*., 2012)

PPI sub-indices: DM yield (spring, summer and autumn), Quality (April, May, June and July), Silage (1st and 2nd cut), Persistency. This indicates the economic merit of each variety within each trait, summed together this provides the overall PPI value.
Varieties with no PPI values - Varieties listed with no PPI values do not have simulated grazing data available to determine a PPI value. These varieties should also be considered for variety selection given that they are present on the Recommended List.

Queries regarding the Pasture Profit Index can be directed to margie.egan@teagasc.ie

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

RECOMMENDED LISTS

Cereal Varieties

Grass and Clover Varieties

Forage Maize Varieties

CROP SCHEMES AND SERVICES

Seed Certification

Seed Testing

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

Recommended Lists on the DAFM Website

www.agriculture.gov.ie

The Grass and White Clover Recommended List Varieties 2015 is available on the Department of Agriculture, Food and the Marine website. Enter the website and click on Publications.