

**The effect of tetraploid and
diploid swards sown with and
without clover on the productivity
of spring milk production systems
- Clonakilty Experiment 2014**

Clonakilty Ag College Farm - 2014

- ❑ 44 hectares (ha; out of total of 84 ha) will be used for the experiment
- ❑ 5 herds of cows
 - 4 experimental herds
 - 1 general herd (30 - 40 cows)
- ❑ 40 ha of non experimental area used for general herd, heifers and calves
- ❑ General herd use for college purposes, proficiencies etc.

Objective

- Assess the biological efficiency from tetraploid and diploid swards sown with and without clover over a full grazing season
 - Milk production
 - Total grass dry matter production
 - Sward quality

Experiment

- 4 treatments
 - Tetraploid sward
 - Diploid sward
 - Tetraploid + clover sward
 - Diploid + clover sward
- 30 cows per treatment with each treatment stocked at 2.75 cows/ha (10.9 ha per treatment)
- Separate farmlet of 20 paddocks for each treatment

Experiment cont.

- 4 tetraploid cultivars (sown @ 15 kg/acre + 2 kg clover)
 - Aston Energy
 - Kintyre
 - Dunluce
 - Twymax

- 4 diploid cultivars (sown @ 12 kg/acre + 2 kg clover)
 - Tyrella
 - Drumbo
 - Aberchoice
 - Glenveagh

Experiment cont.

- 3 breeds of cow
 - Holstein Friesian
 - Jersey X Holstein Friesian
 - 3-way cross (Jersey X Holstein Friesian X Norwegian Red)

- 10 cows of each breed will be in each of the 4 treatments
 - Two 3rd lactation of each breed
 - Four 2nd lactation of each breed
 - Four 1st lactation of each breed

- 40 cows of each breed in the experiment

Grazing Management Decision Rules

- ❑ Target pre-grazing yield: 1250 - 1500 kg DM/ha
- ❑ Target post-grazing sward height: 4 cm
- ❑ All treatments (with and without cover) moved together and remained in the same block as much as possible
- ❑ Similar rotation lengths
- ❑ Target - 300 kg concentrate per cow in each treatment
- ❑ Feed deficit across all treatments: concentrate used to supplement
- ❑ Feed deficit within a treatment: forage made within treatment used to supplement
- ❑ 250 kg N/ha across all treatments

Results - Milk production 2013

	Tetraploid	Diploid	Tetraploid + Clover	Diploid + Clover
Daily milk yield (kg)	15.7	15.5	16.6	16.4
Daily milk solids yield (kg)	1.30	1.25	1.34	1.35
Daily fat (g/kg)	45.2	43.8	43.0	44.5
Daily protein (g/kg)	37.6	37.5	37.9	38.0
Daily lactose (g/kg)	45.9	46.0	45.9	45.8
Total milk yield (kg)	3521	3468	3719	3682
Total milk solids yield (kg)	292	280	301	303
Total fat yield (kg)	159	151	159	163
Total protein yield (kg)	133	130	141	140
Total lactose yield (kg)	162	159	171	168

Results - Milk production 2013

	HF	JEX	3-way	S.E.
Daily milk yield (kg)	16.4	15.9	15.8	0.24
Daily milk solids yield (kg)	1.29	1.33	1.32	0.021
Fat (%)	41.4	45.1	45.8	0.63
Protein (%)	37.1	38.2	38.0	0.26
Lactose (%)	45.8	46.0	45.8	0.12
Total milk yield (kg)	3678	3566	3547	54.2
Total milk solids yield (kg)	288	298	296	4.8
Fat yield (kg)	151	162	161	2.9
Protein yield (kg)	137	136	135	2.2
Lactose yield (kg)	169	164	163	2.5

Results - Herbage Analysis 2013

	Tetraploid	Diploid	Tetraploid + Clover	Diploid + Clover
Pre-grazing height (cm)	10.9	11.0	11.0	11.1
Pre-grazing yield (kg DM/ha)	1829	1939	1822	1937
Density (kg DM/cm)	268	283	265	284
Post-grazing height (cm)	4.30	4.47	4.34	4.41
Herbage utilised (%)	96	93	95	94
Herbage removed (kg DM/ha)	1787	1817	1730	1832

Results - Grass DM Production 2013

	Tetraploid	Diploid	Tetraploid + Clover	Diploid + Clover
Grazing DM (kg/ha)	10,111	10,186	10,383	10,317
Silage DM (kg/ha)	4,291	4,062	4,572	4,637
Total DM (kg/ha)	14,402	14,247	14,954	14,954
Conserved silage (kg DM/cow)	876	878	972	949

Cultivar Performance - 2013

