Background: It is widely recognised that grass-based systems offer a competitive advantage and will predominate in Ireland. However, grazing systems that have been developed to utilise large quantities of grazed grass have in the main been based on low-output per cow. In this scenario, high levels of profitability are possible through avid cost control and comparatively high stocking rates for grazing systems. There are now reasons to consider the development of grazing systems that are based on high-output per cow. These reasons include (i) concerns about increasing dairy cow numbers and environmental emissions, (ii) facilitating farm expansion post EU-milk quota removal for land limited and fragmented farms, (iii) lack of available skilled labour on farms to deal with expanding animal numbers. The rationale for this research is that a high output grass-based spring milk production system can be profitable when built on a foundation of good grassland management and meeting both milk and fertility targets and has a place in a sustainable Irish dairy industry.

For more details on the High Output Systems Research Herd visit
http://www.ucd.ie/agfood/welcomemessage/systemsresearchherd/.

Lyons Systems Research Herd Notes Week 25-05-2020

Farm Details:
Area available: 15.61 ha (1.82 ha out for reseeding)
Current Stocking Rate (MP): 3.72
Farm Cover: 548 kg DM/ha
Growth Rate: 58 kg DM/ha/day
Demand: 37 kg DM/ha/day
Average Concentrate Supplement: 6.3 kg/head/day
Average DIM: 100 days

Current Daily Feed Budget: Cows are being allocated 10 kg DM of grass, 6 kg of grass silage and an average of 6.3 kg of a high energy concentrate. Cows ≥120 DIM (2/58 cows) are on 3.5kg, cows <120 but ≥90 DIM (46/58 cows) are on 6 kg, cows ≥60 but <90 DIM are on 7.5 kg (7/58 cows) and cows <60 DIM on 8 kg (3/58 cows). The herd have been split into three groups and are being offered on average 6.3kg of a 14% protein concentrate,12% protein native formulation concentrate or a 12% protein non-native concentrate in the parlour. These diets will be offered as part of our 2020 nutrition trial until the start of the final grazing rotation in October.

Grazing Plan: The AFC on the 25th May was 548kg DM/ha (range: 50-1241 kg DM/ha) with cover/LU of 147 kg DM/cow. Using data from the nearby Met Eireann weather station at Casement Aerodrome, 6.3mm of rain fell in the last week. While this overdue rainfall raised the AFC and growth rate, silage will still be included in the diet for the time being as SMD is at 68mm as of 25th May. It is hoped the addition of silage will slow the rotation down and reduce the grass demand on the milking platform and increase the grazing rotation to 25 days. Two paddocks (1.82ha) have been re-seeded with a mix of Abermagic (6.45kg/a), Aberclyde (4.3kg/a) and a white clover blend (1.25kg/a).

Milk Production: The average production from 18th-24th May was 32.4 kg/cow at 4.06% milk fat, 3.47% protein, 2.44 kg MS and 30,300 SCC based on milk recording on 20th May. Average milk production this time last year was 32.4 kg/cow at 3.98% fat and 3.47% protein (2.41 kg MS) and SCC of 90,000.

Breeding season 2020: On 2nd May, the breeding season began. It will last for 12 weeks; 10 planned weeks with an additional 2 weeks, if necessary, based on scans. In the third week of the breeding season (16th-22nd May), 15 more cows were submitted for breeding. Therefore, the three-week submission rate was 91% (49/54 cows in the breeding herd) and

the 24-day (26th May) submission rate was 98% (53/54 cows in the breeding herd). The one cow not submitted was subsequently examined and found to be cycling. We expect her to come into heat in the coming days, as she was 45 DIM on 25ᵗʰ May.

	No. of cows submitted	% of breeding herd submitted
Week 1	15	28
Week 2	19	35
Week 3	15	28
Total	**49**	**91**

Breeding is done by AI and will be done twice a day. Bulls being used are FR4728 (Kilfeacle Pivotal), FR5593 (Oakglen Cosmic), FR4573 (VH Praser), FR4439 (Killalough Samir), FR5239 (Hanrahan Olympus), FR4785 (Glenaboy Ronald), FR4608 (Fly-Higher Mod Cade-Et), OPH (Olcastletown Phanthom), FR2314 (Gortcreen Sebastain), FR4686 (Mountdudley Joker) and FR5085 (Lars-Acres Super Nerd).

The weighted EBI averages of the bulls are:

EBI €	Milk SI	Fert SI	Calv €	Beef €	Maint €	Manag €	Health €	Milk kg	Fat kg	Prot kg	F+P kg	F%	P%
266	105	108	41	-7.9	3.6	4	12.1	244	20.8	14.2	35	0.19	0.1

These bulls were selected based on high milk production and components while maintaining high fertility. Eleven bulls were selected to increase bull team reliability. Heat detection is being done using Moo Monitors and scratch cards which will be read in the collecting yard.