

Messages:

- ▶ Remember the principles and key messages from Moorepark Open Day.
 - ▶ Water is a must at this time
 - ▶ Nitrogen, use protected Urea – use it wisely!
 - ▶ Start the build-up plan for autumn grass NOW.
 - ▶ Principles to Remember from Moorepark Open Day
- ▶ General: Dairy farmers make a serious contribution to Irish society:
 - ▶ Only 20 per cent of Ireland’s land base is devoted to dairying; therefore, there is plenty of room to continue expansion.
 - ▶ Every €1 of dairy exports represents 90 cents spend within the Irish economy whereas the multinational sector spend is only 10 cents for every €1 of exports (remember to tell your doubting friends that!)
 - ▶ There are 18,000 dairy farmers and another 60,000 earning their living, mostly in rural Ireland, off the “cow”.
 - ▶ Ireland’s carbon footprint per kg Milk Solids (MS) is less than HALF the world average.
 - ▶ Even with expansion, debt/kg MS (milk solids) decreased from €3.25 to €2.05.
 - ▶ If the milk produced by the 367,000 extra Irish cows was produced by the average cows in the world the CO2 emissions would have been 405,000 tons greater.
 - ▶ The Irish dairy cow produces 4.92kgs of human edible protein for every 1kg of edible protein she consumes. Plant protein could only replace 64 per cent of the typical dairy animal protein from the same land area.
 - ▶ Challenges/risks ahead:
 - ▶ System drift:
 - ▶ Focus on profit rather than output,
 - ▶ Re-focus on resilient systems,
 - ▶ Social licence:
 - ▶ Environmental compliance,
 - ▶ Animal welfare,
 - ▶ People:
 - ▶ Availability and skillset

The target is €2,500 per ha of a farm profit. In 2018 winter milk producers achieved €148/ha more profit than spring producers. Based on Greenfields experience it is absolutely essential to build cash reserves in a good year (do it in 2019).

- ▶ Grassland:
 - ▶ Grass (grazed + silage) made up 95 per cent of the Irish dairy farmers’ cow diet between 2013-2017 (and we don’t market this fact!!).
 - ▶ Every extra TON of grass DM grown increases farm profit by €173/ha.
 - ▶ Clover swards are €305/ha more profitable than perennial swards, because of N saving, more kgs MSs, 1.2 t/ha more grass, more efficient use of N.
 - ▶ Improving soil pH from 5.8 to 6.3 (target) frees up 35kgs N/ha (28 units/acr).
 - ▶ After a silage cut apply urea, delaying lime by 7 days and don’t apply urea to limed pastures for 3 months.
 - ▶ Leave 7 days between N and slurry applications.

- ▶ The target farm cover on 1st Dec for highly stocked farms (2.9+cows/ha) is 750kgs DM/ha and opening at 1000+kg DM/ha on 1st Feb.
- ▶ The peak autumn cover is 450kgDM/cow in early Oct.
- ▶ The target cover for early April is 550kg DM/ha (I think this is too low).
- ▶ The target for a dairy herd is 280 days grazing; but the grazing season decreases when we have higher SR/ha on milking platform (MP).
- ▶ Every 100kg DM off autumn target results in 6 days delay in spring.
- ▶ Each 1kg DM extra allowance in spring gives an extra 0.35kg milk/cow/day.
- ▶ Every 1 day delay in closing pastures after 25 Sept resulted in 16kgDM/ha/day less being available in spring; but early closed paddocks have reduced quality and must be grazed early in Feb to 3.5cms to encourage tiller survival.
- ▶ Every €1 spent on lime, P & K gives a return of €4 in extra profit.
- ▶ Moorepark targets to achieve a 16 ton crop of grass are outlined in Table 1.

Period	Grass Grown (kgs)	No.Grazings	N/ha (kgs)	Meal (kgs)	MS/cow sold
1 Jan -10 April	1450	1	85	210	105
11April -1June	+ 3800	+3	+75	+70	+110
2 June - 5 Aug	+ 4500	+ 3	+ 40	+ 70	+110
6 Aug - 1 Dec	+ 5350	+ 3	+50	+ 150	+150
Totals	16,000	10	250	500	480

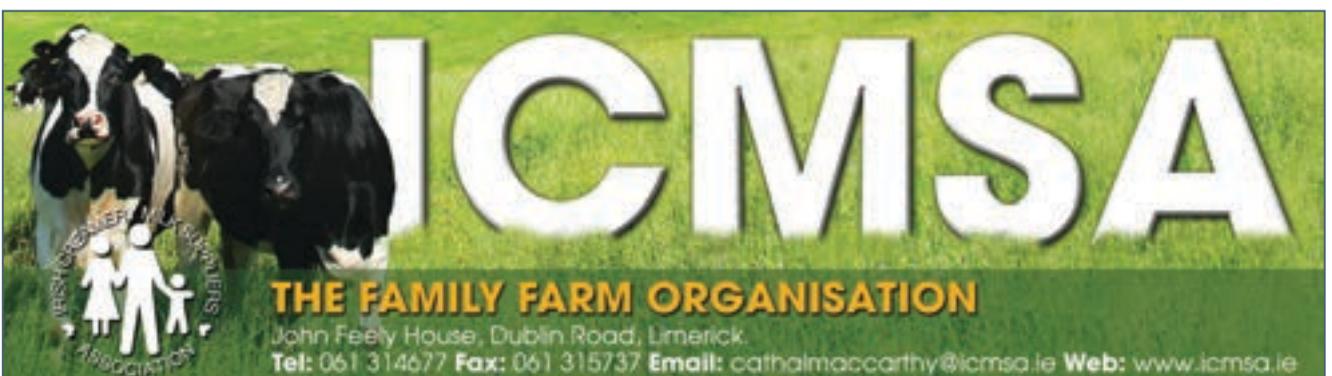
Table1: Moorepark Roadmap to Increase Grass Utilisation: Self-sufficient farm stocked at 2.8 cows/ha, Utilising 13tDM/ha.

- ▶ Fragmented farms: The SR can be as high as 3.5 on MP (overall 2.5) and remain as competitive as non-fragmented farms. But high quality silage (3 cuts) is a priority + some zero grazing (maybe) in October.
- ▶ Carbon/Emissions (let’s call it carbon capture) practices to implement:
 - ▶ Improve EBI; a €20 EBI increase = 3 per cent reduction in carbon footprint.
 - ▶ Extend the grazing season: lengthening the season by 10 days = 1.7 per cent decrease in carbon footprint and €27 more profit per cow.
 - ▶ Substitute clover for chemical fertiliser = 10 per cent reduction in carbon footprint.
 - ▶ Change to protected Urea = 71 per cent reduction in greenhouse gas and €17/ha in cost savings.
 - ▶ Use trailing shoe to reduce losses from slurry and increase its value by €12/ha.
 - ▶ Improve energy efficiency and renewable energy,
 - ▶ Incorporate forestry and hedgerows on the farm – improve existing habitats before developing new ones.
- ▶ Water quality in streams/rivers is the ultimate test as measured by the “life in the stream” – farmers must be more aware of farmyard, land and nutrient management to achieve the challenging water standards.
- ▶ The recovery of applied N is only 25-33 per cent

(message = be careful when, where and how much N you spread).

WE HAVE A LOT DONE BUT A LOT MORE TO DO - EVERY FARMER SHOULD ADDRESS THESE PRACTICES AND APPLY THEM ON HIS FARM

- ▶ He will be more profitable, and,
 - ▶ Our “social licence” will be enhanced.
- ▶ **Breeding:** Every €1 of EBI increases profit per cow by €2. The increase in EBI is going to continue.
- ▶ The target EBI Fertility target is €100 for black and white cows and €70 for Jersey crosses,
 - ▶ Genomics is 16-35 per cent more accurate.
 - ▶ Jersey X is €150/cow more profitable than B & W cows.
 - ▶ Genomics; For the period 2011 – 2017 seven top genomic and daughter proven bulls were compared resulting in the genomic ones being €52 better.
 - ▶ At €22/hd cost, we should consider genotyping all females as the gain is more than double the cost and the advantage is greatest the lower the replacement rate in a herd (happening now as fertility improves)
 - ▶ If using AI genomic bulls: use 7/100 cows, 10/200 cows and 12/300 cows.
 - ▶ Do milk recording so that you have C.O.W., which takes into account hybrid vigour (EBI doesn't), information to assist with culling/breeding decisions.
 - ▶ Use sire advice to selectively mate the best cows to the best bulls without worrying about inbreeding – only 3,300 farmers using it and it should be an absolute priority for herds with high EBI and PDs for % F & P.
 - ▶ The high EBI herd (next generation at €214) when compared with national average herd, €110 EBI, gave €222/cow and €613/ha more profit – why is our national average so low? Too many replacements (49 per cent in 2018) by stock dairy bulls (so much for trying to improve out Carbon footprint).
 - ▶ The Elite Jersey herd (av. Wt. = 393kgs) produced 434kg MS (110 per cent of her body weight) compared with 88 per cent (B & W elite herd) and 82 per cent for the national average herd. In another experiment the JX and 3Way X (incl. Norwegian Red) produced 98 per cent and 91 per cent of their respective body weights.
- ▶ Factors associated with oestrous/bulling:
 - ▶ Targets: 3 week submission rate = 90 per cent and 6 week in-calf rate = 75 per cent+.
 - ▶ 4 main activity times: 2-3; 7-9; 11-13.00; and 21-23.00.
 - ▶ Fertile cows (€59 – 164 EBI fertility) remain in heat for 1-2 hrs longer than lower fertility cows,
 - ▶ Other factors influencing heat duration are: farm, late V early calving; 2nd lactations were nearly 2 hrs less than others, high milk yield in early lactation resulted in fewer “mounts” and non-pregnant animals had 4 fewer “mounts”.
 - ▶ Because uterine infection reduces cow fertility it is advised to Metrichick all cows 3-5 weeks (calved more than 14 days) before start of breeding
 - ▶ Scan cows 5-7 weeks after the end of breeding and cull cows, based on data, so as to prolong grass in the remaining cows' diet
 - ▶ The target dry off BCS is 3.0.
 - ▶ **Meal:**
 - ▶ The target % protein ration at grass is 12-14 per cent – saves on emissions (this is vital to operate).
 - ▶ There was no difference in milk yield in early lactation when 4 kgs meal was fed to cows with % proteins of 27 per cent, 19 per cent or 10 per cent.
 - ▶ Palm kernel and beet pulp produced less milk than dairy ration or soya hulls during drought conditions.
 - ▶ Also, in those conditions heat treated soya bean meal (1kg/cow/day) significantly increased MS/cow.
 - ▶ A feed reserve of 500-800kgs DM/cow is advised to risk manage a bad year but no extra milk will be generated.
 - ▶ Healthy Cow = Healthy milk:
 - ▶ Chlorine should be discontinued for cleaning dairy equipment
 - ▶ Avoid residues, chlorine, iodine, etc. and high thermogenic
 - ▶ Antibiotic message; use as little as possible and as much as necessary,
 - ▶ With a good mastitis control programme, teat seal can be used on cows up to 200K SCC, the previous season, with only small effect on subsequent season's bulk tank SCCs.
 - ▶ A tail mounted biosensor can predict the onset of calving.
 - ▶ Calves: Feeding pooled, high quality colostrum did NOT affect the calf health or performance during the pre-weaning period.



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Management Hints

- ▶ Automatic calf feeders are more labour efficient than manual feeders (0.53 V 2.21 seconds/calf/day) when weaned at 90kg Fr and 85 kg Jersey X.
- ▶ Body weight targets for replacements:

Age	HF	JX
3 months	115	100
10 months	250	215
Pre-breeding	330	295
Pre-calving	550	490
- ▶ 12-week weaned calves were heavier than 8 week weaned but there was evidence of compensatory growth pick-up at second year let-out.
- ▶ A four-year contract rearing trial has started with 168 participants – I amazed how few of these are in West of Ireland, where it was heavily promoted and is required there! This practice is going to “blow up” if contracts are not adhered to, particularly by the rearer. There are a variety of indicators that can be used to measure both animal and resources (facilities/infra-structures) that can help us provide the cow with good or poor welfare.
- ▶ Sub-optimal mobility score results in reduced milk yield, prolonged calving intervals, increased SCC, earlier culling, and welfare concerns – let’s measure it!
- ▶ Examine your data for transition herd health problems as they adversely affect subsequent lactation performance (page 178)
- ▶ John’s prevention/control: Early removal of infected & test positive animals, feed clean colostrum and milk to calves with early separation from mother after birth; as well as having a ‘closed herd’ or with limited, known animal introductions.

▶ People

- ▶ Always invest in High Return – Low Difficulty (Implement) projects. Define them for yourself.
- ▶ Become an employer of choice. The following indicates most dairy farmers are not: 77 per cent don’t issue pay slips; 67 per cent of employees don’t have to record their time; 87 per cent of employees details are not recorded and retained; 85 per cent of new employees don’t work a probationary period.
- ▶ Target yourself, by planning, to achieve the “60 hour working week during spring” (Green fields project) – they brought it down to less than 70 hours/week.
- ▶ There are a number of well recognised pathways for young people in Ireland, from farming or non-farming backgrounds, to enter farming, even up to land ownership. Identify and explore! But the key is developing the grass, cow, people and business skill required. Saving and getting stock ownership are worthwhile goals from early in life.
- ▶ Avoid Repetitive Strain Injury, to you or staff, in the milking parlour by having a good milking routine.
- ▶ Prepare and attach cluster to cows in groups of 4-6 from front of pit, completing the routine with 15-20 mls teat spray evenly to each teat.
- ▶ Which hand to hold cluster? Depends on if attaching the cups between the legs (2ft 2in

parlours – hold in right hand) or in front of legs (2ft 6 inch – hold in left hand) – when addressing cows on right hand side of parlour from dairy. Use the other hand to hold cluster on the opposite side. The operator needs to be more aware in rotaries as he/she is standing in one position all the time.

- ▶ In herringbone parlours with two milkers, the operators must operate from front of pit down (the second milker should never start half way down); with the second milker starting on unit 12 (approx..). This allows the cows to exit, at their own pace, when 75 per cent of the cups in the row have been attached, being facilitated by an automatic exit gate.
- ▶ Much more detail is in the Moorepark '19 Booklet. How do I operationalise all this info? You need to because it will increase your farm income by €20,000 while making you far more environmentally compliant.
- ▶ Benchmark where you are relative to the targets and write down a plan of action.
- ▶ Discussion Groups should develop project to adopt from the ideas/practices outlined.
- ▶ But it behoves all of us to do something!
- ▶ A final thought - when you as a dairy farmer are challenged by being the part of the cause of 33 per cent of all Irelands emissions, outline from above what you have done, and are doing.

Water must be available

- ▶ Water availability is essential for animal welfare and performance:
 - ▶ Water is the animals’ most important nutrient
 - ▶ When temperatures increase from 18 to 30°C, water consumption increases by 29 per cent
 - ▶ Cows provided with shade during summer consume 18 per cent less water per day,
 - ▶ Cows will drink at least 5-6 times their milk yield per day, more if eating meal or very dry roughage,
 - ▶ Limiting water availability severely and rapidly depresses performance,
 - ▶ Drinking rates vary from 1 to 3.5 gallons/minute,
 - ▶ As cows consume water up to 14 times per day, it is important to have water available within 300 meters and it should be available at or near milking parlour.

Use Nitrogen (Protected Urea) Wisely!

- ▶ With only two Nitrogen application remaining, take stock of what you can legally apply (Table 2)

Stocking Rate/Year		August	September	Total for Year	
Kg/ha Organic N	Cows/ha	(units/Acr)	(Units/Acr)	Kg/ha	Units/Acr
155 - 170	1.82 - 2.0		14	164	133
170 - 180	2.00 - 2.12		20	192	155
180 - 190	2.12 - 2.24		28	216	175
190 - 200	2.24 - 2.35	26	20	250	202
200 - 210	2.35 - 2.47	28	28	275	223
211 - 250	2.47 - 2.94	25	18	242	196

Table 2: Recommended Rates of N for Different Stocking Rates

- ▶ This Nitrogen should all be blanket spread as there is no reduction in grass yield for August – September blanket spread applications. Saves labour and soil compaction.
- ▶ The August Nitrogen should be applied early in the month as you will
- ▶ grow 10-15 per cent more grass because growth rates are higher early in the month than late August.
- ▶ Target Farm Covers in August to build grass
- ▶ To make “real money” you must rely solely on grass to feed cows, which is a big challenge in autumn as grass growth decreases relative to demand.
- ▶ The following target covers (kgs DM) per cow must be achieved:
 - 1st August200
 - 15th August.....300
 - 1st September400
 - 15th September.....450
 - 1th October400
- ▶ Grass build up starts in August:
 - ▶ In the South on 10th August
 - ▶ In the North on 15th August.
- ▶ Rotation length must be 24-26 days in August.
- ▶ Build up farm cover by increasing grazing rotation to 30-35 days from mid-September on.
- ▶ The following possible ways to build up grass should be applied:
 - ▶ Reduce stocking rates by taking away calves or cattle, selling cull cows, drying off very poor yielders. Stock cows at 2.9 cows/ha for grazing.
 - ▶ Reduce 2nd cut silage (particularly if you have enough pit silage)
 - ▶ Introduce meals (expensive option) but will be necessary at high stocking rates.
A grass budget will tell you when to start but early rather than too late.
An alternative to meal is to feed good quality round bales and this is the preferred option for high stocked farms who have surplus silage.
 - ▶ Apply more nitrogen (stay within your limits) in August as you get a better response than in September.
- ▶ Graze out pastures well (3.5-4.0 cms) as there is a temptation to leave too much after each grazing in August.
 - ▶ Set up a ‘3rd cut-graze’ bank of grass.
 - ▶ Protect regrowths by not having cattle or cull cows grazing after cows or spending more than 24 hours in each paddock.
 - ▶ It’s a very good idea to set up this; ‘3rd-cut-graze’ because:
 - ▶ It brings in a bank of high quality grass for grazing in September.
 - ▶ Allows you use 2-3000 gallons (16-24 units N) of slurry per acre on it at closing
 - ▶ Allows you put on 55-65 units of Nitrogen (discount the slurry N) to cover the 6-week closed-up period and the extra Nitrogen will grow extra grass which will feed 10-12 cows for one extra day for every acre closed up.
 - ▶ The way you do it is set aside 10-15 per cent of the farm for this purpose by stocking the cows at 2.9 cow/ha for grazing.
 - ▶ These fields should be topped or very well grazed out (skinned) leaving no butt, apply the slurry plus 25-35 units of N per acre and leave for 6 weeks and it should result in an extra 7-10 days grazing in late September.
 - ▶ An interval of 3-5 days should be allowed between spreading slurry and applying nitrogen, so as to avoid losses of N by denitrification.
 - ▶ If grazing grass is tight during this period, some of this area can be grazed.
 - ▶ However, at low stocking rates (2.2 cows/ha or less) because the demand will be low, 40-45 kg DM/day, it will not be necessary to do any of the above to build up grass. It will happen naturally.

Miscellaneous!

- ▶ This month and next are probably the only periods of slackness from routine work where farmers can devote time to maintenance work. However, too many farmers are doing huge amounts of capital development work, because (1) they like doing it and (2) they are trying to save money. People need to cut back on this mainly because many dairy farmers are “stressed out” from work and need a break.
- ▶ What maintenance actions are required?
 - ▶ Repair eave chutes and down pipes, transferring rainwater direct to streams/waterways (reduces slurry handling and soiled water)
 - ▶ Repair broken cubicles, feed barrier, etc (reduces physical damage to animals).
 - ▶ Repair/replace broken slats (reduces foot problems)
 - ▶ Repair damaged concrete on floors, passages, yards and cubicle beds (reduces lameness)
 - ▶ Improve ventilation, both inlet and outlet area (this is a major issue on most farms)
 - ▶ If you are working more than eight hours per day get someone in to do these tasks; otherwise you will be working longer or they won’t get done.
- ▶ Carefully check replacement weights to above targets:
 - ▶ The average figure is no use. It is the animals below the target you must identify and manage separately to “catch-up”
 - ▶ I also have a concern with very heavy animals as they won’t milk well and will become culls sooner than on-target weight ones.
- ▶ This is the month for farmers to take a holiday:
 - ▶ If you are working more than eight hours per day, seven days a week, this indicates you are short of labour on the farm for your system.