



**United Dairy Farmers, Farm Efficiency Award, prize winner Gordon Mitchell, farms alongside his father Walton Mitchell in the rolling countryside just outside Banbridge Co. Down. They are currently running an 80 strong herd of Holstein Friesian cows averaging 7,000 litres of milk sold per year. Great emphasis has been placed on the improvement of milk produced from forage, both grazed grass and silage.**

Currently there is 4000 litres of milk from forage per year being produced per hectare, or broken down on individual cow basis, cows are averaging 26 litres per day with 18 litres being produced from grazed grass. Today the herd is averaging 250 litres more milk from forage per cow than the bench marked average according to CAFRE figures. Fertility performance is also excellent with a calving interval of 367 days down from 414 days 3 years ago.

Gordon first contacted Glenside at the Balmoral show where he spoke to Raymond Pogue of Pogue Soil Solutions, Glenside's representative for Northern Ireland. Gordon wanted to follow a more natural approach to farming that reduced his reliance on chemical fertiliser which was becoming increasingly more popular in the early 2000's and whilst at the same time was becoming an increasing cost to the farm business. Gordon felt that his investment in chemical fertiliser wasn't

paying dividends and potentially was having a negative effect on cow and soil health. Initially one quarter of the farm was soil sampled and the soils were analysed using the Albrecht® soil survey. Robert McCoull technical director of Glenside set about identifying the imbalances in the soil. The Calcium Magnesium ratio was already in line with the desired values, however Potassium levels were very low and combined with high sodium levels, a significant loss in grass growth was being witnessed. Low Boron levels and high iron levels were also having effect on plant health and root development. The low Boron levels were negatively affecting the transport of sugars through the plant, thus reducing the dry matter digestibility of the grass.

When Gordon walked the farm with Robert and Raymond, the team of three, Physical, Chemical and Biological nature of the soil were explored. Compaction was an issue in both cow paddocks and silage fields which was leading to high Iron and Sodium levels, this in turn was having a detrimental effect on root structure and biological activity. To begin, a silage field was aerated using a Pogue Aerator and half the field received a treatment of Marinure® a seaweed bio-stimulant sprayed on at 5 litres/ha. Before the field was cut for silage Gordon and Raymond cut and weighed a 1metre quadrat of grass and although visually there was no difference a 15% increase in weight was recorded. After that Gordon implemented a full programme on the farm. Seagreen K was applied to all silage fields to build potassium levels slowly to prevent any luxury uptake in Potassium in the silage.

A special tailor made blend of fertiliser is used that contains boron to raise the boron levels in a gradual manner. Biagro PhosN® is sprayed on once a year to release the large total reserves of Phosphate that was highlighted in the Albrecht® soil survey meaning that no phosphate has been applied through chemical fertiliser since the start of the programme.

Silage is cut three times a year aiming for quality rather than quantity. Slurry is applied before each cut. The slurry is treated

with Slurr-Morr® a slurry inoculant, which breaks the raw organic matter in slurry down to a liquid humus increasing the availability of nutrients, in particular the ammonium and potassium, allowing Gordon to only apply 54 units of Nitrogen and 51 units of Potassium to his first cut silage.

Gordon focused very strongly on the rearing of replacement animals as these will be the backbone of the future herd. Seaquim® is fed to all animals from calves right through to mature cows.

It has resulted in stronger heats and more vigorous calves at birth that are more resilient at fighting disease and infection. Its benefits are attributed to all heifers hitting desired weights at breeding with average first service of 15 months and average first calving of 24 months. This alone feeds into the profitability of the herd.

As testimony to his increased attention to detail, one field was analysed again in 2014 and compared with the results obtained from same field in 2005.

Field Name: Long Field			
	Desired BCS%	2005	2014
Calcium	68%	68.2%	70%
Magnesium	12%	11.16%	12%
Potassium	4.5%	2.9%	4.65%
Sodium	0.89%	2.09%	0.78%

The benefits are clear to see:

- 4,000 litres from forage,
- 18 litres per day from grazed grass in spring
- 367 day calving interval

This is the systematic approach for anyone serious about producing milk from forage.