

Managing what you can measure

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Background

Matt has been the manager at Didling farms since 2009. Having spent a career working on a number of farms in the UK he moved to his current location in 2004. The farm was then known as Woolbeding farms. Due to changing circumstances the unit underwent major restructuring from 2007 downsizing the farming area by 50% during that period. Didling farms Ltd. came into operation in 2009. This also gave rise to a more progressive change in direction for the operation, Matthew and the owner decided to build a team of people with the right expertise around them to build a progressive sheep flock on a challenging farm. We decided to take on the mandate of 'if we can't measure it we cannot monitor it'. That policy forms the basis of the approach and business decisions of the unit. We put in place electronic identification in 2008 and we are slowly building up the database of information to work out what works and what doesn't work at different times of year (We are still learning). During this time we have been lucky to be involved in product testing of EID technology as well as product testing and trial work with a number of different companies. In the last few years the flock has been involved in industry projects with AHDB looking at KPI's (key performance indicators) in the sheep industry. That work with AHDB has continued on as the flock is now part of the Challenge Sheep project, which will examine the factors influencing the performance of the current cohort of female replacements coming into the flock. This is set to run for the next seven years.

Farm overview

The farm is located in the heart of the South Down National park. In total the unit covers 489 ha. That includes large areas of woodland. The land type on the farm is mixed from high quality tillage areas to more challenging less productive ground. Large areas of the unit are leased out on farm business tenancies as follows:

- 58ha for vegetable production (Sweet corn, spinach & coriander) on a 5 year lease
- 80 to 90 ha for a winter drill crop – yearly lease

- 8 to 20 ha for a spring drilled crop – yearly lease

In the case of the winter and spring drilled crops the straw is owned by the unit as part of the lease agreement. The livestock operation is based on the 150ha land block. This is comprised of the following

- 83.8 ha Permanent grassland
 - 30 ha zero input grass (0Kg N/ha)
 - 12.4 ha low input grass (50 Kg/N/ha)
 - 41.4 ha permanent grass
- 66.2 ha 5 year leys
 - 22 ha red clover
 - 44.2 ha high sugar grass, white clover, or high sugar grass, white clover, chicory & plantain swards

Sheep Flock

The sheep system is based on a 1250 ewe mid-March indoor lambing flock. At its base the flock is mainly comprised of Llyen and Aberfield x Llyen ewes. In addition there is a sub flock of mules maintained to benchmark the flock's performance against the industry standard. The flock operate a pyramid breeding structure with a nucleus purebred Llyen flock at its core as outlined in Figure 1.

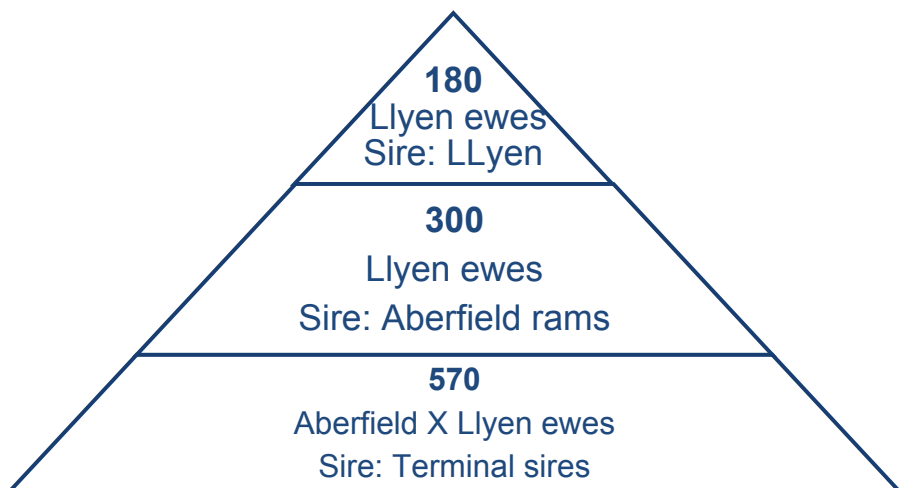


Figure 1. Flock breeding structure at Didling Farms.

The only time the ewe flock is split on a breed basis is at mating, at all other times it's for management purposes only. The aim of the structure is to produce the flock's replacements, from the top two tiers with the aim of improving the genetic potential each generation. This policy starts with the nucleus flock 180 Llyen ewes. These are kept pure and will produce the base maternal genetics for the flock. The remaining Llyen ewes from the second tier are mated to an Aberfield ram. Aberfield rams were introduced to the flock to bring in a different dam line and introduce some hybrid vigour to the ewes. The females produced from this tier then form the large bottom tier of the flock that are crossed with terminal sires for example Abermax rams. The Mule ewes within the flock have been incorporated into the system to benchmark the performance of flock and monitor progress against the industry standard, as the Mule ewe traditionally formed the basis of the UK sheep flock. Approximately 50 ewe lamb replacements for this sub flock are purchased each year from a single high flock health status flock. These ewes are then crossed with Suffolk rams with all lambs produced sold. No females are retained from this breeding group.

Challenges

Each sheep system has its own series of challenges. For Didling Farms we have focused on the following areas:

- Lamb growth rates and hence numbers finished
- Output – number and weight of lambs produced
- Cost control - utilisation of grass/conserved forage (winter holding)
- Breeding programme – identify the genetics best suited to the farm / most profitable
- Weather conditions (we see the extremes - wet in winter and dry in summer)
- Worm resistance

Nutrition

One of the challenges faced on the farm is the weather conditions that we experience during the season. The farm tends to get the extremes of wet winters and the opposite occasional drought during the summer. The ewe flock is housed from December so there is a cost to be considered. Straw is readily available from the cropping lease agreements. However with a long housing period good nutrition is vital during this period to keep high levels of performance within the flock. To this

end we work closely with leading sheep consultant Lesley Stubbing's who looks after the feed plans and many other aspects of advice for the flock. Each year we aim to produce High D-Value silage (i.e. 75 DMD +). One cut is harvested from the red clover leys early to allow them to be back in for lambs post weaning. The remainder comes from off cuts and dedicated silage areas from the high clover leys and permanent pasture during the grazing season. All silage is analysed and a feed plan is formulated for the winter based on these results. Sheep are then fed on a TMR diet, the high quality silage has resulted in high intakes, and soya being added to the diet in the final weeks of pregnancy. The flock has been achieving good performance from using this system.

Wormer resistance

Wormer resistance is now an issue that most flocks have to deal with. We undertook the process of identifying what wormers worked and how well they worked in the flock. The status of the flock is indicted in Figure 2. Since that we have been operating using SCOPS principals and using FEKPAK analysis to target treatment. That combined with the grazing rotation used on the farm has allowed us to manage the issue.

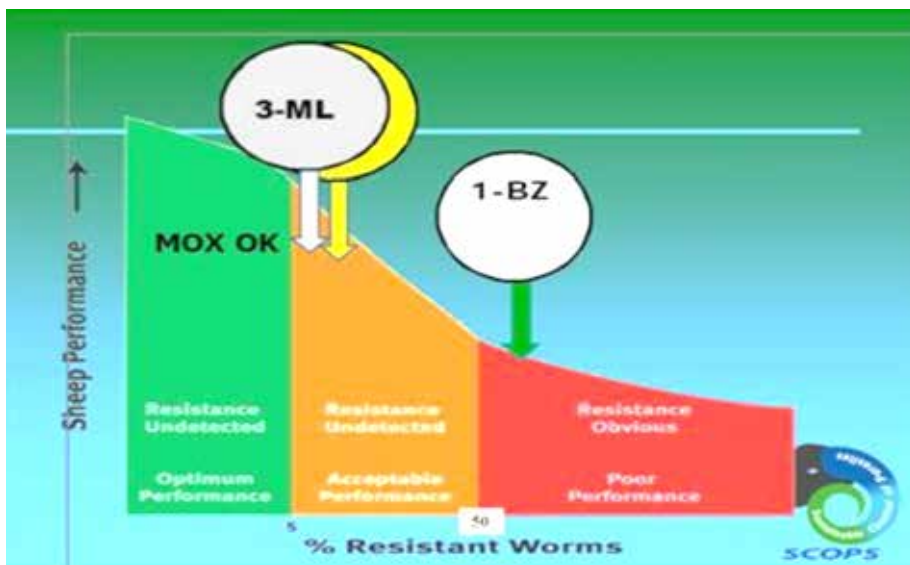


Figure 2. Wormer efficacy on Didling Farms

Data recording

For any business you have to be able to measure and record information so you can know if it works or not. If you can measure it, you can monitor it and then manage it to improve and get more efficient which in turn will allow the business to become more profitable. Farming is no different. We aim to measure key aspects influencing performance, such as; grass measuring and budgeting, feed quality, worm burden and animal performance. As outlined earlier we invested in EID recording starting in 2008. Since then we have built up a database of animal performance records. This required some investment in equipment during this period. We currently operate the system using Border Software. We're currently using Psion handhelds or smartphones, Bluetooth enabled wands to capture some of the individual animal information such as lambing records, mortality records, animal movements and some of the medicine records. However, another key investment was the purchase of a Pratley 5-way auto drafter, this combined with either the XR3000 or 5000 Trutest weigh heads is probably one of the most used pieces of kit on the farm. This system really allows us to exploit the EID and software to its potential as all handling takes place in the main yard. The software packages have proved useful in looking at the data and often it's taken from there into excel to look at it in more detail and use it to facilitate making management decisions. This system is then used for the following:

- Weight records and Daily Live weight Gain (DLWG)
- Condition score records
- Treatment records
- Re-tagging Records
- Splitting management groups
- Finding individual animals (e.g. identifying higher performing ewes)
- Anything else that makes sense



Figure 3. The Pratley autodrafter unit fitted with a TruTest XR3000 in the handling unit at Didling farms.

KPI's for the flock

Recording the information is one issue but equally if not more important is making use of this information. The data collected feeds into the Flocks KPI's – this is an area we have worked on over the past number of years.

The main KPI's for the flock are as follows:

- DLWG & Body condition score (BCS)

How do they measure it (them)

- Monthly DLWG check (whole farm plus management group) we set targets for both
- 8wk and weaning point (DLWG & BCS)
- Marketing plan

What are the targets?

- 80% of lambs sold by the time rams go in with the ewes (or 1st November)
- Weaning weight: 80% of lambs at 30kg Live weight

How well have we done in the last 3 years?

- Slowly improved – gradual changes

What have we done to address any shortfalls?

- Introduced creep to selected group and look at
- different sire and trace elements

Key aims?

- DLWG improved,
- BCS holding better though out the year

Body Condition score

Body condition score is one of the key areas we use to assess performance and to identify where intervention is needed. We have been monitoring BCS at a number of key stages during the season for a long time and have added a few extra time points for the various projects that we are involved in.

When do we condition score?

- Pre-tupping
- When the rams come out from the ewes
- Scanning
- Housing (and move thin twin up in triples etc.)
- 4 to 6 pre-lambing (and move thin twin up in triples etc.)
- Lambing (only for project)
- 6 to 8 week weigh point(only for project there's not a lot we can do about it at this time of year)
- Weaning
- Then every month to tupping

We operate on a 0.25 scoring system and use the Trutest weighheads to record the individual scores. This information then allows us to draft ewes into different management groups at key stages of the season. An example of this is highlighted in Figure 4. where ewes were scored in August. In this case 318 ewes were separated and managed as a separate grazing group as they were under condition (i.e. less than 3). Monthly scoring for some may seem excessive, but it's easier to start in time and plan ahead. Any improvement in condition won't happen overnight and the fact that it will also influence the feed budget for the farm.

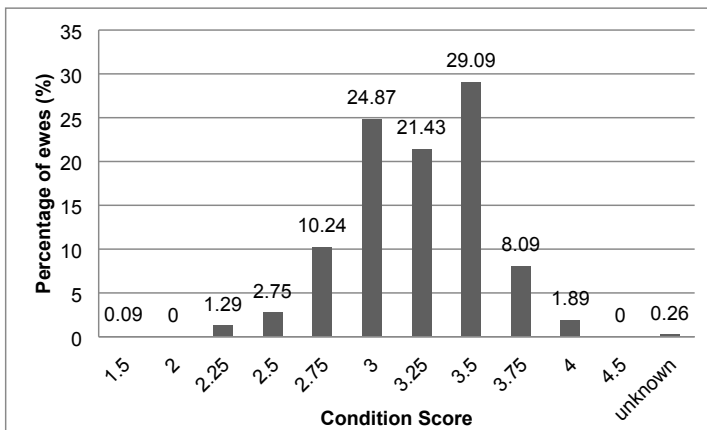


Figure 4. Flock condition score pre-tupping in August

Daily live weight gain

Monitoring growth rate has become another of our KPI's for the flock. Higher performing lambs are more efficient, require less feed and are more profitable. Remember you always sell the best lambs but how are the rest performing? Regular weighing allows us to monitor performance and identify issues that arise. We begin weighing at 6 to 8 weeks post lambing and at regular intervals during the season thereafter. The target for the farm is to have 80% reach a weight of 30 kg by weaning and to have 80% of lambs drafted by ram turnout (or 1st November). Over the years we have looked at various factors influencing this, sire selection, health issues, management groups, grassland, worm burden trace element status & concentrate supplementation among others. We then see if we can address some or all of these issues over the short or longer term. This is an on-going area we concentrate on but we have made slow steady progress over a number of years as highlighted in Figure 5.

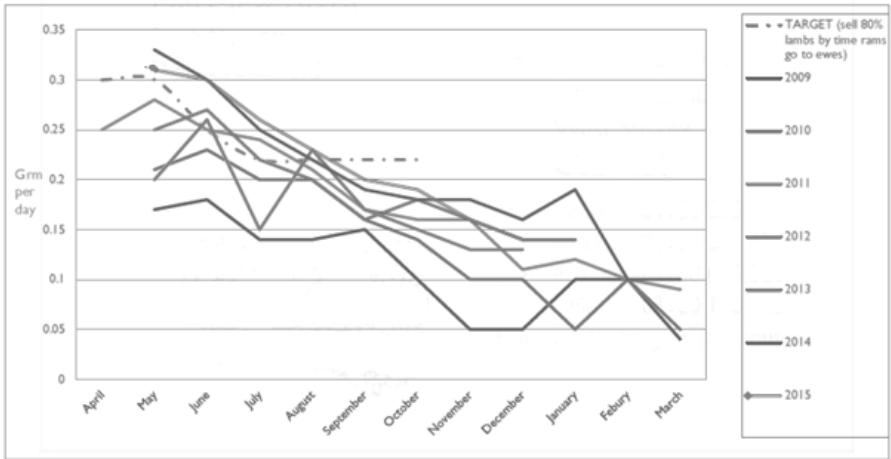


Figure 5. Lamb growth rate (g/day) during the season over from 2009 to 2015

Many of these changes have been made by taking practical steps on the farm. We now know some of the management groups will perform poorer due to the grazing area they are allocated to so we introduce supplementation to these groups. Another key change was the introduction of earlier weaning which started in 2013. Traditionally lambs were left on their dams up to approximately 16 weeks of age which was counterproductive as they were competing with their lambs for feed. From the 2013 season onwards we introduced weaning at 12 weeks of age. This allowed us to give lambs priority when it comes to pasture and to divide them into appropriate management groups on the basis of weight and gender. For example the heavier ram lambs are grazed on the red clover pasture. The overall improvement in performance is highlighted when we look at the progress of the flock at weaning from 2012 to 2015 (Figure 6). As there is a larger percentage of lambs hitting and exceeding the target of 30kg at weaning. Overall the subtle changes to the system have contributed to the improved drafting pattern for the flock.

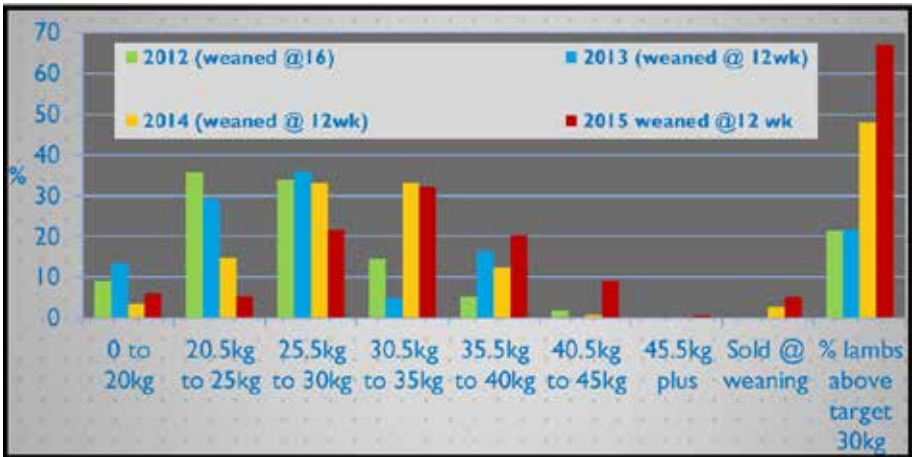


Figure 6. Lamb weight (kg) at weaning 2012 to 2015

We have been monitoring the performance of rams on the farm for a number of years and used this information to make informed purchasing decisions. However, one area we are going to focus more on in the future is the management of the replacements for the flock. This in part will be as result of being involved with AHDB through the Challenge Sheep Project. We know from previous work on the KPI project (Figure 7) that we need to ensure all ewe lambs hit the 40Kg target by scanning and we have been working to address the areas which will influence this. It will also provide a further insight into how long replacements last in the system and their reason for departure.

The mineral status of the flock was another area we examined in detail. Not content to accept the sales pitch from the rep we looked at the issue in more detail with a number of on farm trials. These were conducted in conjunction with research staff from the University of Nottingham. We examined the issue in both ewes and lambs, in short it was not clear cut and the work did throw up some surprises that I will discuss in more detail in the talk.

Grassland management

Knowing how the stock performs is one thing but knowing what fuels them and managing it is equally as important. As outlined at the start the lands and indeed pasture quality is very variable. We relied heavily on the 5 year leys on the farm to

achieve our targets. We have focused on getting high sugar grasses with high clover content into new leys in combination with chicory and plantain. With good management we are also getting up to 5 years out of our red clover pastures, in part due to improved varieties and good management. We slowly moved over to rotational grazing (all there now) over the past number of seasons. After turnout, ewes are set stocked for a number of weeks in groups of 40 to 60 ewes to prevent miss mothering. The ewes are grouped up as lambs get older into large grazing mob of 500 to 700 head of stock ewes plus lambs by 7 weeks post lambing. The aim is to reduce the grazing period in each area. The newer leys are now being split into 2 to 3 ha paddocks using RAPPAs temporary fencing equipment. It hasn't always been straight forward as getting access to water in certain paddocks has been an issue (we get drought during the summer). But the benefits in terms of animal performance have been clear; we are now splitting up some of the old leys into 4 ha paddocks.

We are also measuring grass production. This started with an EBLEX project using a platometer, now we are using a sward stick, it may be a bit rough but we find it works well for us. This helps us make management decisions on a short and longer term basis. We have been using FARMAX software for feed budgeting for a number of years. As we are in an area that also suffers from drought during the grazing season we have to monitor our feed supply and demand. This is where the animal performance data and grass monitoring combine to determine the feed supply required for the flocks for the months ahead.

Conclusion

Our policy has been that you have to measure and record information so as you know what works or not. Doing this will allow you to get more efficient, which should allow your business to become more profitable. Remember don't hide from the information instead use it to your advantage. It has worked for Didling farms, the progress can be slow at times but you will see the rewards if you stick with it.