

## **WINTERING SYSTEMS FOR THE SOUTH:**

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### **INTRODUCTION:**

Cows in the South are mainly wintered on brassica crops. This system has been inherited from the few dairy farmers that were here before the dairy- influx in the nineties. Typically cows were farmed at 2.5 cows per hectare (“one cow to the acre”) and the cows were wintered on brassica crops on the milking platform. 15 to 20 % of the milking platform was put in crop and the pasture was renewed afterwards. The soil had enough time to restore under pasture and this system worked reasonably well.

It did not take long for the “hot new imports” to work out the cost of having part of the milking platform out of the round for winter crops. Wintering the cows off and increasing the stocking rate to over three cows to the hectare was considered to be a better option. Cows were sent off over winter, or the dairy farmer would buy a runoff and winter his cows there.

Since those early days a lot has changed. Some relevant changes are:

- The cow population (and its environmental impact) has increased dramatically.
- The price of land is four- to five times as high now.
- Grazing- off costs have increased from \$8/ cow /week to \$18-\$22/ cow/ week.
- The “dirty dairying” campaign and the “Growing for Good” report have put the spotlight on the environmental impact of the dairy industry.

- Growth in the dairy industry has tapered off. The “new” runoff is not so new anymore and damage that has been done to the soil will often be noticed by the same person that did the pugging.
- Consumers have become increasingly aware of- and concerned with what happens on the farm.
- The silage- contracting industry in Southland has matured and the cultivation of grain for whole crop silage has come of age.
- Other feedstuffs, like PKE or Copra meal, have become available to the Southland farmer.

I think it is time to take a step back and ponder on the question if this brassica- wintering is still the best option, after all these changes have been taken into account.

It is also fitting to consider the sustainability of our industry after the early “frontier” and “gold-rush” years. The dairy industry will have to find a way to successfully co-exist with the rest of Southland.

### **THE OPTIONS:**

Wintering dairy cows is in reality nothing more than providing 1): food to eat and 2): a place to be for the dairy herd. There are only a few options. You can put the cows:

- On the dairy platform (on grass or on crop)
- On someone else’s farm (a grazier)
- On own runoff
- On or in a purpose built facility.

## **Comparison the presented options:**

### **On dairy platform:**

#### Advantage:

It can be handy to have some crop on the dairy platform for late calvers; a mob that is not damaging the pasture, but is still handy to run in so that springers can be drafted out of this mob and put on grass.

#### Disadvantage:

The opportunity cost of having a large part of the milking platform out for winter crop and wintering the cows “at home” is just too high on intensive dairy farms. Any land within cow-walking distance from a milking shed is best used for feeding milking cows during the lactation.

### **Grazed off with a grazier:**

#### Advantages:

- This system will provide a mid- winter break and time to prepare milking shed and calf sheds.
- It gives the opportunity to blame someone else if the results disappoint :-)
- Damage to soils, drains and lanes is done to someone else’s farm.
- No running costs for bikes and tractors are incurred associated to wintering

#### Disadvantages:

- Unless grazier farms nearby, cows will have to be trucked (costs and organisation during peak- trucking time at the start and the end of the winter)
- It is not certain that the grazier will do a good job; there is risk for conflict and disappointment
- Distance will often make it difficult to monitor the cows and take cows home when needed (e.g. early calvers, slips and non- doers)

- All cows are typically dried off at the same time and leave immediately. An udder check after drying off often does not happen and diet changes are abrupt.
- Often the cost of wintering varies from year- to- year and another grazier might have to be found. This creates uncertainty.

Summary: This system can work well if a capable, reliable grazier is found not too far away, but the cost of drying all cows off together and sudden diet changes remain. The grazing costs are on the way up, and a good grazier, handy to a dairy farming area will be in hot demand.

#### **Wintering the cows on own runoff:**

Advantages:

- The dairy farmer is more in control of the wintering and can intervene easier if nessecary.
- The people looking after the cows “know” them and should have excellent stockman ship skills.
- The runoff could appreciate in value.

Disadvantages:

- An intensive cropping rotation or a big runoff is needed to provide enough winter feed. It can be difficult to make the rest of the runoff “pay its way”.
- Working the ground and sowing the crops coincides with the busy mating- and silage making period on dairy farms; it will make a busy period even busier.
- Over time a build- up of Brassica- problem- weeds occurs; weeds that are closely related to Brassica’s. This makes it difficult to control them chemically (e.g. Redshank, Shepherd’s Purse and Wild Turnip).

- Diseases like dry rot in Swedes increase with the intensity of the cropping rotation and the amount of crop residue.
- Soil structure damage will decrease future crop yields and make the soil more difficult to work.
- Pugging in wet conditions will cause nutrient loss and environmental damage.
- Nutrients deposited on the paddocks during winter grazing will have “disappeared” by the time the next crop is up- and growing.
- Stress and sudden changes can cause a range of animal health issues, like mastitis, peritonitis, sore feet, nitrate poisoning, and general poor health.
- SMCO’s in Brassica’s can cause anemia.
- There are high costs and risks associated with the growing of the crops.
- The wastage of feed and the increased maintenance requirements will inflate the wintering costs.
- Most of the cows will have to be dried of at the same time.
- The staff gets fed- up with working in raingear and chasing cows through mud. The “hard slog” period from early June to mid September is often too long and people get de- motivated. It is hard when people do their very best and still get only average results.

Summary: This system can work as part of a “breaking in” program, but it is not sustainable long- term and problems will increase after 6- 8 years. It is a harsh system to cows and their handlers, especially on the heavier soils.

## **HOW DO WE FARE ON WOLDWIDE FARMS?**

We operate three dairy farms in the Winton/ Otautau area, and we have been wintering our 1900 cows on our own runoff. We have had that runoff for about 10 years. During those years we have found the following:

- With the years it gets more difficult to grow a decent crop. Fertiliser costs and weed control costs increase when putting Brassica's in for the next round.
- Erosion and soil structure damage make the soil harder to work (sometimes from too wet, to hard and lumpy within a day).
- It is possible to grow a 20 T swede crop, but on average you'll do well to better 12 T DM/ha.
- The lifespan of bikes and tractors is reduced when they are used for wintering.
- Last winter I made a bit of a study of our wintering system, and I found that for the 70 days between roughly 1-6 and 10-8:
  - o A control group gained 20 kg live weight over the whole winter when fully fed. The condition score remained unchanged, but the range increased (some cows did poorly, some did not too bad). The 20 kg would have gone into the growth of the foetus.
  - o "Fully feeding" in our situation meant offering 15.8 kg DM/cow/day.
  - o We offered 170 MJ/ cow/day; and the requirements for maintenance are about 70 MJ/cow/day. This means that about 60 % of the offered feed was wasted or used for increased maintenance requirements (to warm up Southland)
  - o Our wintering cost per cow per week was \$22,38
  - o The wintering cost of this 10 week period worked out at \$0.57 c per kg MS over the production of the following year
  - o The average cost of the brassica crops was 17.2 c/kg DM

- The average cost of the supplements (grass seed straw, whole crop silage, barley straw ) was 18.8 c/kg DM

The founder of VISA, Dee Hock remarked: “The problem is never how to get new innovative thoughts into our minds, but how to get the old ones out”.

Is this wastage and “hardship” really necessary? Or have we arrived at a point in time where the cost of having the cows dry for 100 days, the cost of the environmental impact and feed losses, the stress we cause the cows and their handlers, and the costs associated with the risks of weather extremes have surpassed the perceived benefits.

#### **LET’S CONSIDER THE “EUROPEAN-STYLE” ALTERNATIVE:**

##### **What do we want out of the system?**

- The cows should be able to lie dry and clean so that their lactation can be extended to 305 days (cows will be dried off in batches throughout the winter)
- The facility should be suitable to enable clean and responsible production of high quality milk; the climate inside should be dry, fresh and healthy.
- The manure should be managed so that it can cost effectively be applied where it is needed most when the nutrients will be absorbed by active plants (in the spring; outside the manure irrigation area)
- The system should be competitive at high- and low payout levels (dairy farming should not get addicted to steel and concrete).

After comparing the alternatives I think that the best option is what people call a “free stall barn” in America, or a “ligboxenstal” in Holland. In my opinion there is no need to invent a New Zealand alternative while cows have been housed successfully for 2000

years overseas. We have built a facility like this in Winton for about \$1400 per cow, and it is in use for the first winter now. We still have two herds on Brassica's. If the inside option compares favourably, we will build another shed next year.

**I anticipate the economic comparison to work out roughly like this:**

**Assumptions:**

- Wintering 500 cows in special facility. Allowed building cost facilities \$1400/ cow.
- Interest rate 8%
- Write off over 25 years
- M/A cows wintered in there, R2yr heifers to arrive on the dairy farm 0108
- Cows dry for only 60 days.
- Dry off in batches; a cow calving 1-10 would be milked until 1-08
- Extra days in milk:50
- Extra production 50days x 1,2Ms/d = 60kgMs
- Value of nutrients applied in growing season \$25.000 (calculated by Jane Smith from Ravensdown)
- Restricted grazing and overnight housing in wet periods (benefits ignored)
- Advantage of culling cows outside peak- killing season ignored
- Lower peak note requirements ignored (too complicated)
- Feed 10 kg Dm silage when dry.
- Feed 10 kg Dm silage plus 4 kg palm kernel or crushed barley when housed completely and milked.
- Cost of crop wintering \$22/ cow/week
- Cost of silage \$0.18/kgDm
- Cost of palm kernel and/or crushed barley \$0.26 /kg Dm

**Crop wintering:**

Wintering costs 500 cows x 10 weeks @ \$22	110.000
Transport 500 cows x \$6 x 2(to runoff and back)	<u>6000</u>
Total costs	116.000

**In-house wintering:**

Investments 700.000 x 8%	56.000
Depreciation 700.000/25	28.000
Extra silage 70 days x 500x10 kg x \$0.18	63.000
Extra PKE/ grain 25 x 500x 4 x \$0.26	<u>13.000</u>
Total costs	160.000

**Extra income in- house wintering:**

Milk 500 x 60 x \$4.00	120.000
Saved nutrients	<u>25.000</u>
Total extra income and savings	145.000

**Financial benefit in- house system: 101.000**

**Other benefits I anticipate are:**

- We will have more certainty that condition score targets are met with positive effect on production and reproduction in the following year.
- Lower stress levels will increase the life span of the cows and lower the health costs over time.
- Lower cow losses and MT rates will speed up genetic progress of the dairy herd.
- Option to benefit more efficiently of the availability of PKE and Copra meal.

- Dairy farm staff will really appreciate the system when they get to know it.
- Increased nutrient efficiency will result in higher possible stocking rate and per-ha performance.
- Opportunity to provide Fonterra with more high quality milk with a flatter lactation curve. It will do our co-op good.
- There is nothing stopping us from milking 700 kg MS/ cow if this would be attractive, but at lower inputs and -production the system will also work out.
- Future improvements to the management of the “new” system will further enhance the results (haiken; learn as you go).
- This system will future proof dairy farming (for now). Environmental impact and animal welfare will be good- to excellent. We should be on the POSITIVE SIDE; with a system that works well for all parties involved.