

INTERNSHIP REPORT A2

What are the principle and the advantages of OBSALIM method for Holy Goat Organic Farm?

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Internship site: Holy Goat Organic Farm

Country: Victoria, AUSTRALIA

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Finally, I want to thank Ann-Marie and Carla's family and everyone I met during this three months. They have made of this internship an unforgettable experience.

All these people have contributed, through their availability and their kindness, to make my internship enriching and motivating.

To all of you, a big thank you!

Table of acronyms and abbreviations

fE: Fermentable Energy

fF: Fermentable Fibres

fP: Fermentable Protein

gE: Global Energy

gP: Global Protein

kg: kilogram

km: kilometre

mm: millimetre

%: percent

PDI: digestible protein in the intestine

rS: Rumen Stability

sF: Structural Fibres

Introduction

Coming from a small dairy sheep farm of the southwest of France, I decided to go to discover the Australian farmer's way of life.

I spent 12 weeks in a dairy goat and cheese production farm where Ann-Marie Monda and Carla Meurs are the owners, Holy Goat Organic Farm.

Ann-Marie and Carla do not originally come from the agricultural world. They used to be teachers.

Before creating their own farm, they worked on a lot of farms all around the world to acquire experience.

Now, they have been farming for more than 15 years. They breed and milk about 100 goats and make a range of cheeses which are considered throughout Australia to be Australia's best goat's cheeses.

In the first part of this report, I will describe my internship at the farm. In the second part, I will present my study, which focused on OBSALIM and its advantages for Holy Goat Organic Farm.

Part 1: Presentation of Holy Goat Organic Farm





Map 1: Map of Victoria



Photo 1: Mount Alexander

11 - Description of the internship site

111 – Consideration of the environment

1 – Geographic location

Holy Goat Organic Farm is located in Sutton Grange, in southeast Australia, in the state of Victoria. Sutton Grange is a small country town located approximately 30 kilometres south of Bendigo, 20 km east of Castlemaine and 125 km north west of Melbourne.

2 – Natural and physical environment

Sutton Grange is part of the Shire of Mount Alexander. At 744 meters above sea level, Mount Alexander is the highest mountain in the region.

The altitude of Sutton Grange ranges from 300 metres to 320 metres. On the farm, the terrain is quite gentle so mechanisation is easy. However, in winter, the ground is saturated with water so winter crops are difficult.

The terrain and soil around Sutton Grange has a high percentage of quartz and granite. The topsoil measures only 10 cm deep. In depth, a layer of clay allows water retention.

Victoria is the wettest state of Australia with an average annual rainfall of around 660 mm, but a lower more recent average of around 500 mm. Sutton Grange possesses a warm oceanic climate. Over the year, the average maximum temperature in Sutton Grange is 20.4 ° C and the average minimum is 7.3 ° C and rainfall averages 550 mm.

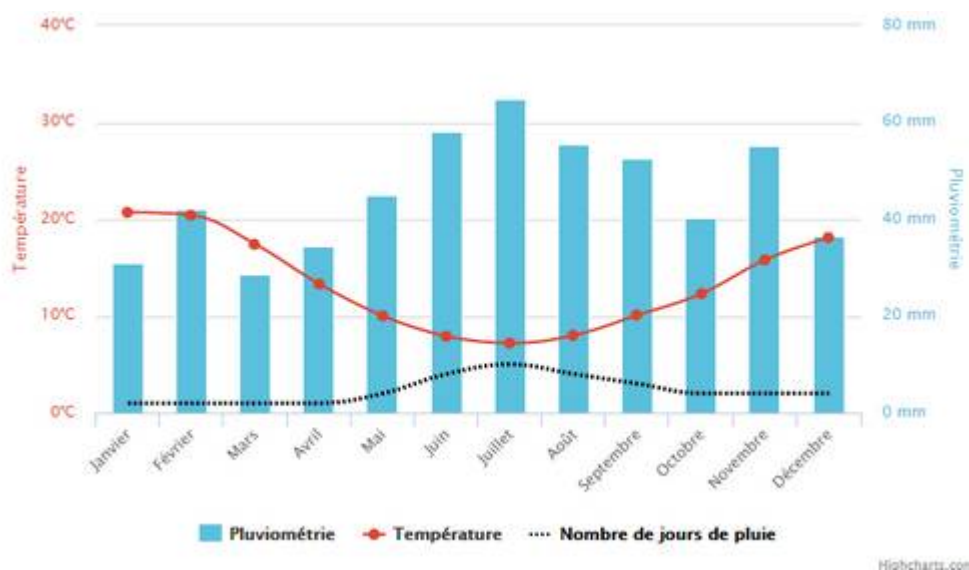


Photo 2: Ombrothermic chart of Sutton Grange

Average rainfall of 28.7 mm make February and March the driest months. In July, rainfall is the most important of the year with an average of 64.8 mm.

In January, the average maximum temperature is 29.3° C. January is thus the warmest month of the year. July is the coldest month of the year. The average maximum temperature is 11.9 ° C and the average minimum is 3.1 ° C during this period.

3 – Socio-economic environment


The 2011 Australian census shows the population of the State of Victoria to be 5,354,042 people. Over 70% of Victorians live in the capital city of Victoria, Melbourne. Victoria is the most urbanized state in Australia with almost 90% living in cities.

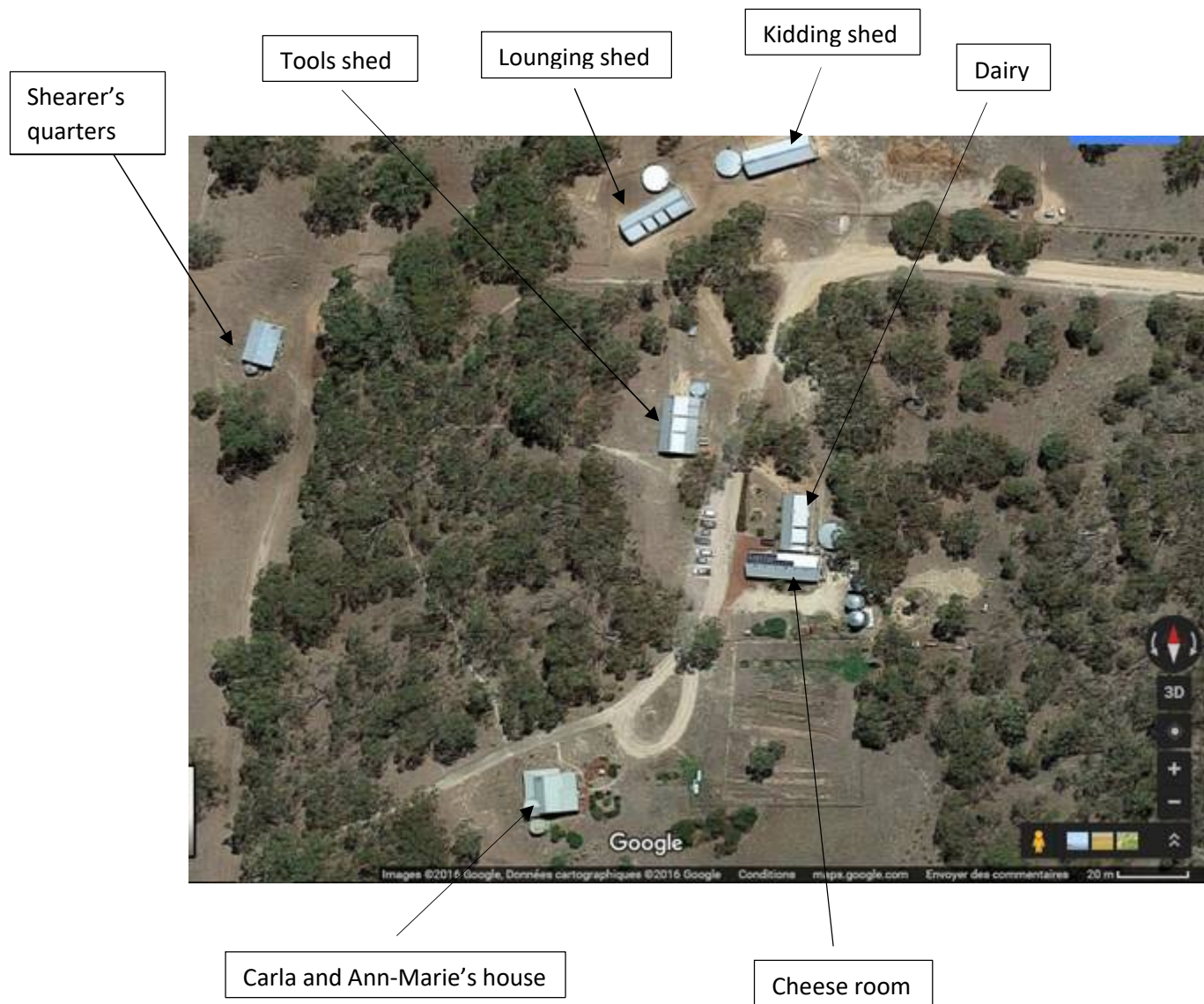
The Shire of Mount Alexander accounts for a little less than 18 000 inhabitants. The major employing industries are health care and social assistance, manufacturing, retail trade, education and training and construction. Agriculture, forestry and fishing represent only 4.6 % of employment and industry in the Mount Alexander Shire.

Sutton Grange has a very small population of approximately 150 people, most of which consist of established sheep farming families. In the 1930s, a bushfire was a tragic disaster for Sutton Grange. A once prosperous little town, with pubs, a butter factory, school, church and post office, was burnt to ashes, and that brought an end to its prosperity. Sutton Grange is now known for its fine food and wine, its fine Merino wool which is some of the best in Australia, and for Holy Goat Cheese.

12 - Holy Goat Cheese Organic Farm

121 – Historical

- 
- 1999: Carla and Ann-Marie purchased 204 acres in Central Victoria.
 - 2000: Carla and Ann-Marie start farming. . They buy some goats, does, kids, and bucks from 4 different farms. They start to milk 3 goats by hand.
 - 2002: They start to make some fresh cheese in their kitchen for their family and friends.
 - End of 2002: Construction of the cheese factory and two sheds.
 - 2003: Ann-Marie and Carla milk 13 goats and make cheese in the new factory.
 - July 2003: They obtain the licence in order to sell the cheese. They start to sell cheeses at the market.
 - 2005: The farm accounts for 50 goats and 2 workers are employed.
 - 2007: Ann-Marie leaves her teacher job to work full time on the farm. They increase the number of goats to 60.
 - 2012: Carla leaves her teacher job to work full time on the farm. At the same time, they increase the number of goats to 80.
 - Today: They milk about 90 organically certified goats.



Map 2: Farm plan

122 - The production system

1 – Land

Today, Carla and Ann-Marie own 204 acres, all certified organic. However, they can't use the whole of this surface for the goats. In fact, about 60 acres, 30% of the land, are not cultivated or grazed, in order to preserve native grasses.

The rest of the property still has many vestiges of native grasses, many in broad swathes, including wallaby, kangaroo, spear and microlaena. Long-lived perennials, they are most active during the summer and into autumn, when feed is most needed.

But, in between times, especially in late winter and into spring, they still need ongoing feed for the dairy herd.

They are now discovering a way of having both, pasture cropping, which



Photo 3: Pasture cropping

enables them to grow annual crops, while retaining and maintaining the perennial native feed.

Last April, Ann-Marie and Carla sowed one tonne oats and 25 kg chicory over 104 acres of land with native perennial grasses remaining in place.

2 – Buildings

The farm is located a few kilometres from the main road between Melbourne and Bendigo.

All of the buildings, including Carla and Ann-Marie's house and the Shearer's quarters, are close to each other (see farm plan).

The goats do not need to cross the road, as all the paddocks are near the farmhouse.

The cheese room is near the dairy, which facilitates the milk transfer from the dairy to the pasteuriser.

3 - Equipment

Agricultural machines are minimalist on the farm. They have only a tractor from 1980 mainly used to bring the hay to the sheds.

In March 2016, they replaced the old milking parlour of 12 places and 6 milking points with a milking parlour of 24 places and 12 milking points. This has reduced milking time by half.

4 – Livestock

Three breeds of goats composed the herd: Saanen, Toggenburg and British Alpine.



Photo 4: Saanen



Photo 5: Toggenburg



Photo 6: British Alpine

Saanen: This breed is from Switzerland. They are great milkers, they produce an average 900 liters of milk per lactation. The solids rates are not very high, with a fat content of 3.2 % and a protein content of 2.9 %.

Toggenburg: This breed is from Switzerland. They produce an average 780 liters of milk per lactation with a fat content of 3.5%.

British Alpine: This breed is from Switzerland. They produce an average 780 liters of milk per lactation. The milk also provides good solids rates, with a protein content of 3.24 % and a fat content of 3.7 %.

5 – Labor

Ann-Marie and Carla employ about ten workers on their farm, although several work part-time. Throughout the year, there are also two or three interns. Two days per week, two people wrap and despatch cheeses. Finally, four people work just on the weekend to sell cheeses at the market.



Photo 16: Fromage Frais



Photo 9: Silk

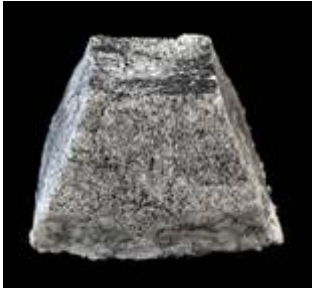


Photo 8: Black Silk



Photo 15: Pandora



Photo 14: Piccolo



Photo 11: La Luna



Photo 7: Skyla



Photo 12: Eclipse



Photo 13: Brigid's Well



Photo 10: Nectar

123 – Cheese production

On the farm, four types of cheeses are made:

- **Fresh Cheeses:** Fromage Frais, Silk and Black Silk.

They are the simplest forms of goat's cheese, are not matured and so rely on the quality of the milk for their flavour.

Fresh cheeses have a high moisture content and low salt content and are sweet and citrus to taste.

- **Mature White Mould Cheeses:** Piccolo and Pandora.

They are surfaced ripened white mould cheeses. The white mould, *Penicillium candidum*, is added to the milk during the production process. The mould breaks down the cheese from the outside in.

- **Mature Yeast Rind Cheese:** Skyla, La Luna, Eclipse, Brigid's Well.

They have lower moisture content and a more concentrated curd, dominated by the classic goat's cheese yeast, *Geotrichum candidum*. As the cheese matures it loses moisture and becomes firmer. The young Skyla and La Luna have a moist, creamy, citrus centre that with further milk protein breakdown becomes denser with more intense flavours.

- **Nectar Cheese:**

This is a semi hard cheese. There are two types, one made only with goat milk and another one made with cow and goat milk. The cow's milk is bought from an organic dairy cow farm located close to Holy Goat.

Part 2: OBSALIM and its advantages for Holy Goat Organic Farm



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OBSALIM, « *OB*serva*tion* des *Symptômes ALIM*entaires », is a French method used to control ruminant's feeding. The founder of OBSALIM is Dr Bruno GIBOUDEAU. He is a French veterinary surgeon who has spent 20 years observing farm animals, dairy in particular, with the sole focus on the fact that they are ruminants. *“Learning the language of the rumen, sign by sign, word by word”*. He says *“we need to find out what is going on in the rumen by looking at external cues and signs, in the herd, and in the animal.”*

By simple observation of the animals and their environment it is possible to establish a precise diagnosis of the nutritional status and animal needs. OBSALIM forms the basis for correcting the quality, quantity and distribution rhythm of the ration.

At the beginning of my internship, we had the pleasure to welcome Bruno GIBOUDEAU himself for an OBSALIM course.

Therefore, I will present here this method and my observations throughout my traineeship before concluding on the advantages of this method for Holy Goat Organic Farm.

21 – How to make your OBSALIM diagnosis?

211 – OBSALIM criteria

B. GIBOUDEAU has set up 7 OBSALIM criteria to identify the risk factors in a ration:

1 – Energy

Two criteria of OBSALIM are used to characterize energy:

fE = 'Fermentable Energy' or fast. That part of the ration that makes the rumen fermentation possible and sustains the production of the volatile fatty acids which are absorbed from the rumen to provide the energy needs of the animal.

gE = 'Global Energy'. All the energy available to the animal: the energy in the ration and the energy produced in the rumen that will benefit the animal.

2 – Protein

As for energy, two criteria are used to characterize protein:

fP = 'Fermentable Protein' or soluble nitrogen usable, necessary to rumen fermentation, whose excesses are absorbed from the rumen.

gP = 'Global Protein' assimilated by the animal including the share produced by ruminal fermentation. This term represents the digestible protein in the small intestine (PDI) as well as ammonia when produced in excess in the rumen.

3 – Fibres

Two criteria are also used to characterize fibres in the ration:

fF = 'Fermentable Fibres', fine, digestible, easily fermentable fibres and rapidly degradable by rumen's fibrolytic bacteria. They are transformed into energy for the animal.

sF = 'Structural Fibres', hard and long fibres. They induce the chewing and are only fermentable after they have been mechanically degraded by a great amount of chewing. They stimulate the production of the saliva which controls the rumen pH and provides some fermentable proteins for the rumen fermentation.

4 – Rumen stability

rS = 'Rumen stability'. It indicates the fluctuations of the rumen pH after meals or between meals.

212 – The four steps

In order to make a reliable diagnosis, the following four steps need to be carefully followed. For the first two steps, the herd needs to be observed as a whole; for the last two steps, the animals have to be observed from close by.

1 – The herd as a whole

Check first the homogeneity of the group to see if all the animals in the group have a similar condition, express a similar vitality and are of a similar cleanliness.

When within a group there are differences in condition, when some are cleaner than others or when some are more active than others, this means that there is a poor adaptation to the management of the herd.

It's important to check also their rhythm of ingestion and rumination. In fact, we must give them time to ruminate. For ruminants, rumination is like a second feed. The first feed is when they ingest it. The second is when they ruminate and the bulk of their saliva goes into buffering the rumen to allow nutrients to be extracted and absorbed, thanks to the microbes that live in their guts. Farmers need to leave their ruminants quiet at rumination time in the morning between 9-11 am and in the afternoon between 2-4 pm.

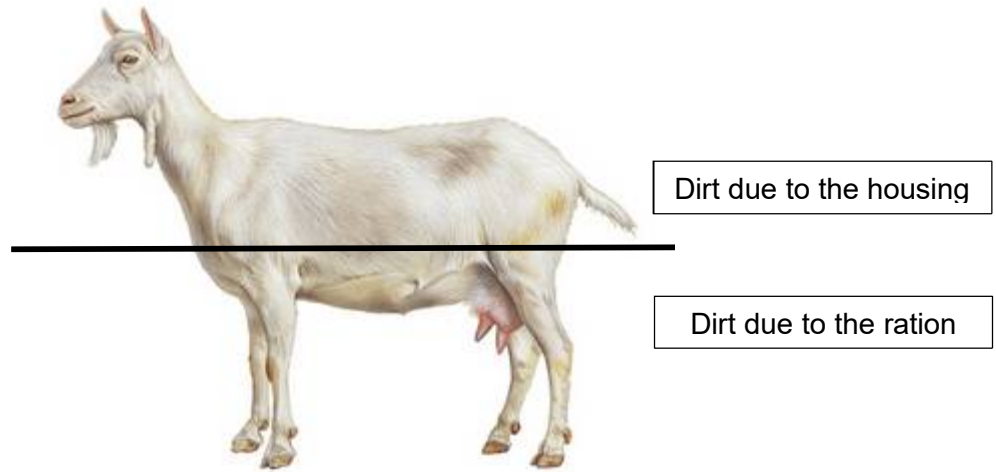


Figure 1: Horizontal cross of the hock

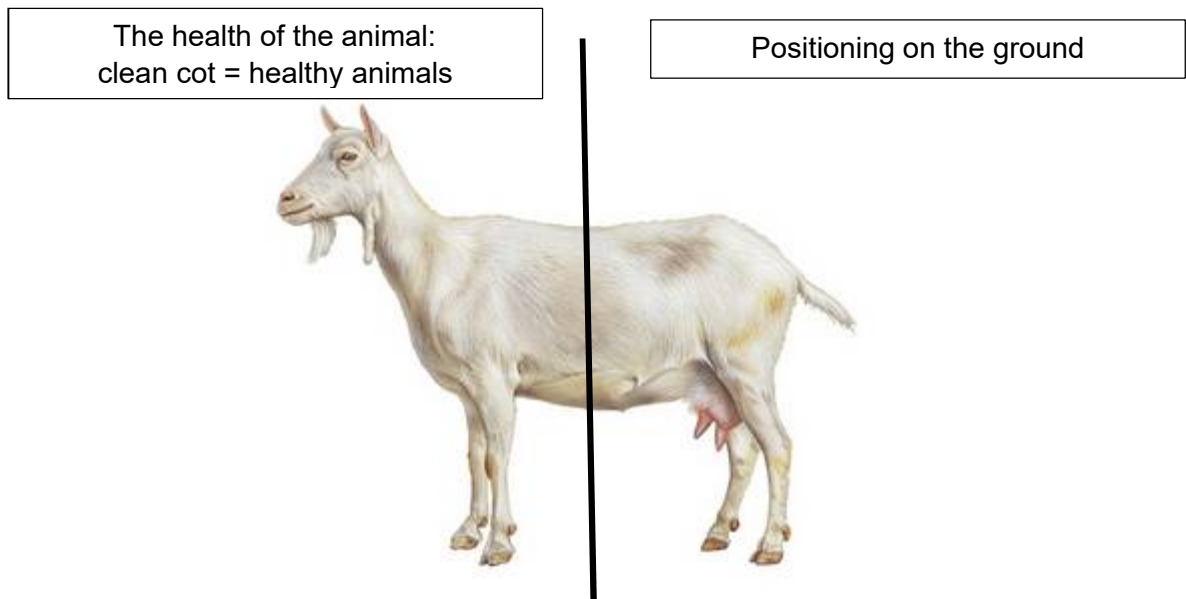


Figure 2: Vertical cross of the hock

Check the cross of the hock on several animals

- Reading the horizontal axis

The lower area is dirty: this symptom occurs when the animals emit soft droppings or excessively soil sleeping areas. It is therefore related to a feed problem.

The upper area is dirty: the cause is a lack of space or ventilation in the building resulting in the appearance of dust that settles on the hair of animals.

- Reading the vertical axis

The front area is dirty: skin and hair is soiled with ochre colorations or dust. This symptom occurs when internal organs such as the liver, kidneys, or the rumen malfunction. The cause may be pathological.

The rear area is dirty: usually soiled by droppings. The symptom “dirty rear cross” shows discomfort.

2 – The herd up close

Assess the rumen stability

The pHG area indicates a temporary drop in the rumen pH which causes a partial sterilisation of the rumen flora. The consequence is a slowdown of the fermentation of cellulose. The animals have consumed too much rapidly fermentable carbohydrates and normal regulation through saliva production was insufficient to balance the rumen pH.

The ingredients of the meal and/or the sequence of distribution of the various parts of the ration are to blame. Improve the sequence by making sure roughage is offered at the beginning of every meal.

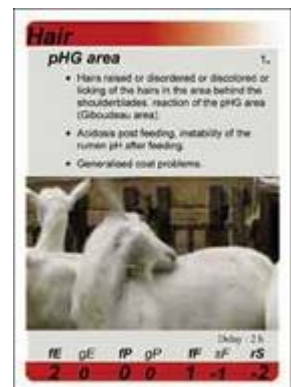


Photo 17: pHG area active

Variable pats indicate too much variation in digestibility between different meals within one day or from day to day.

Assess the composition of the ration.

Use the cards and the book.

Identify the digestive symptoms present in the herd. Select the corresponding cards. Only retain the cards related to the digestive symptoms that are most prominent in the animals and seen on most animals. At least three cards need to be selected, each of a different anatomical area (colour code).

Add up the total for each individual OBSALIM criterion. The values for the criteria are on the bottom of the cards: add up the values of all the selected cards to make a total for each criterion.

The totals have a value for comparison between the criteria only and never indicate the level of excess or lack of an ingredient in the ration.

- A negative value indicates a limiting factor or a deficiency in the ration.
- A positive value indicates an excess in the ration except for rS.
- A zero value indicates a physiological balance, even if it results from the addition of criteria + and -.

The efficiency of the ration can be evaluated by comparing the total value for fE and gE. When their totals are very close, there is a good transfer of energy from the ration to the animal to support its physiological and production needs.

213 – Additional tests

1 – Droppings cake

Producing a droppings (or 'poo') cake allows a comparison of its height, fibrousness and the presence of grains or mucus. Its realisation and interpretation are detailed in annex 1.

2 – Milk test

The milk test is used to assess its suitability for cheesemaking, as well as the milk's digestibility and quality. The implementation and interpretation of the milk test are detailed in annex 2.

22 – Securing the diagnosis

To secure the diagnosis, several steps are essential.

221 – Reading the cross of the hock

The reading of the cross of the hock is essential to highlight housing problems or parasitism which can also cause nutritional imbalances. If this reading is used to identify a housing problem it must be solved otherwise the dietary adjustment will not be done correctly.

222 – The principle of triangulation

It is very important to use symptoms that are in different anatomical areas; each area has its own colour code. To make a valid diagnosis, cards from at least three different colours need to be used.

223 – Sorting the symptoms by relevance

Sometimes it is possible to have a lot of symptoms in the herd, so it is important to select them in order to retain only the most relevant. The sort is done in the following order:

- 1- Save discriminating symptoms: pHG area, changeable droppings.
- 2- Use the symptoms that are seen on a large number of animals, ideally $\frac{1}{2}$ to $\frac{2}{3}$ rd of the group. These symptoms express the real situation of the whole group. It is possible to use symptoms expressed by a smaller amount of animals but this will reduce the reliability of the diagnosis.
- 3- Sort the symptoms according to their apparition time. Some symptoms appear slowly, others fast. It is important to choose symptoms with a rapid evolution to appreciate the quality of the ration.

224 – Groups of animals

Grouping the animals according to production level, age levels and possible genetic differences will help to better understand the need for each group and make the diagnosis more reliable.

225 – Delay and checking

When a recent change needs to be assessed, make a calculation based on cards with a short delay only.

Always verify any changes you make by checking for the disappearance of the symptoms that were seen and by checking that no other symptoms appear. Re-adjust after a few days if required until an adequate balance is obtained, always taking notice of the delay aspect of the symptoms.

Feed regime for the goats before OBSALIM changes are applied:

The goats got concentrate and whey during morning milking. Then they grazed on pasture/ruminated until afternoon milking. They got concentrate and whey during afternoon milking and then hay overnight in the sheds.

Table 1: MIX 90 goats commencing 18/06/16

Oaten	2.0	Bucket	20 lt
Lucerne	2.0	Bucket	20 lt
Barley	2.5	Bucket	10 lt
Bran	1.5	Bucket	20 lt
Linseed	0.8	Bucket	10 lt
Vinegar	0.9	Litter	
Dolomite	3.5	Cup	
Sulphur	0.7	Cup	
MgSO4	0.0	Cup	
Lime	1.2	Cup	
Beet	1	¼ Cup	
Diatomite	6	Cup	
Zinc	1	¼ Cup	
Copper	3	Tsp	
Boron	3	Tsp	
Seaweed	4	Cup	

Table 2: New MIX 89 goats commencing 10/07/16

Oaten	2.0	Bucket	20 lt
Lucerne	2.0	Bucket	20 lt
Barley	1.6	Bucket	10 lt
Bran	1.0	Bucket	20 lt
Linseed	0.6	Bucket	10 lt
Vinegar	0.9	Litter	
Dolomite	2.4	Cup	
Sulphur	0.5	Cup	
MgSO4	0.0	Cup	
Lime	2.4	Cup	
Beet	1	¼ Cup	
Diatomite	3	Cup	
Zinc	1	¼ Cup	
Copper	2	Tsp	
Boron	2	Tsp	
Seaweed	4	Cup	

23 – Observation and changes throughout my internship

231 – Bruno's first observation

8 th of July 2016	Herd heterogeneous
	Droppings shapeless
	Eye redness
	Hair pHG area active
	Nose discharge and stains of food



Photo 19: First OBSALIM observation



Photo 18: Result

Result	fE	gE	fP	gP	fF	sF	rS
	9	2	1	-1	3	-3	-5

We notice a big gap between fE and gE: the fermentable energy is much higher than the global energy. Furthermore, the rumen stability has a negative value and the pHG area is active.

1- Bruno's interpretation

The first thing that Bruno said was: "the herd eat too much, they have insufficient time to ruminate". You need to leave your goats quiet during rumination time (9-11 am and 2-4 pm). You need to give them hay first thing in the morning, before any concentrates. They will have concentrate during milking. They will feel fuller, will have more fibre in the gut and the rumen will manage the concentrates much better and so there will be better rumen stability.

2 – Our changes

We changed the feeding and milking schedule. Before, we would milk at 6am. The herd would arrive on the line and be fed concentrate on an empty stomach. Now we milk at 7am. We feed them hay at 6am before they come on to the line as Bruno suggested.

We added bicarbonate of soda to the whey to increase the pH of the whey to neutral (pH=7). Because of the lacto-ferment process, whey pH is 4.4, quite acid, and when we give that to the goats it causes a big dip in their rumen pH, leading to rumen instability. Bicarb is quite alkaline, so it will buffer the whey and therefore increase the rumen pH. In the same time, we decided to don't give them whey in the afternoon.

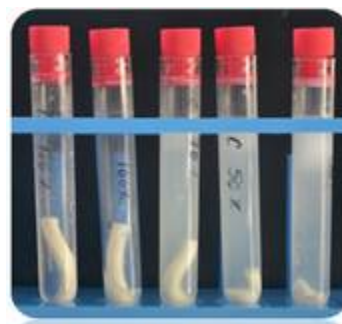
We reduced the grain in the mix and some minerals (see the new mix).

232 – My observations

Date	Observation	Poo cake	Milk test	Conclusion
31/07/16	pHG area active Droppings changeable Shiny coat Selective or refusal with the food	Thick : 30 mm No grains Short fibres	Curd responds well to all the dilution levels Whey cloudy No deposits on the tube's bottom	Potential for change low : no changes, we keep the same mix

Result	fE	gE	fP	gP	fF	sF	rS
	3	1	3	2	1	0	-1

Potential for change (difference between the highest and the lowest number): 4



1 – Interpretation

Because the potential for change is low, we considered the ration efficient and we don't make any changes in the mix for the moment.

Table 3: New MIX 97 goats commencing 08/08/16

Oaten	3.1	Bucket	20 lt
Lucerne	1.4	Bucket	20 lt
Barley	1.8	Bucket	10 lt
Bran	1.1	Bucket	20 lt
Linseed	0.6	Bucket	10 lt
Vinegar	1.0	Litter	
Dolomite	2.6	Cup	
Sulphur	0.5	Cup	
MgSO4	0.0	Cup	
Lime	2.6	Cup	
Beet	1	¼ Cup	
Diatomite	3	Cup	
Zinc	1	¼ Cup	
Copper	2	Tsp	
Boron	2	Tsp	
Seaweed	4	Cup	

Date	Observation	Poo cake	Milk test	Conclusion
07/08/16	pHG area active Droppings shapeless Hair: lack of structure Grains and fibres in the droppings	Thick : 22 mm Presence of grains Short fibres	Curd weak and not contracted Whey cloudy Accumulation of curd in the tube's wall	Sign of insufficient energy in the ration and low casein production We reduce the Lucerne and increase the oaten

Result	fE	gE	fP	gP	fF	sF	rS
	8	3	0	0	4	-2	-6

Potential for change: 14



1 – Interpretation

The ration is underperforming because the energy of the ration (fE=8) is not fully transferred to the animals (gE=3). There is an excess of fermentable fibres (fF=4) and its value is much higher than the structural fibres (sF=-2). The protein values are at 0 and play no role in the imbalance of this ration.

The goats don't regulate their food intake effectively and eat too much.

2 – Changes

We will reduce the access to the field during the morning rumination time (9-11am). The animals will be forced to ruminate longer and reduce their food intake.

In the same time, we reduced the Lucerne and increased the oaten in the ration.

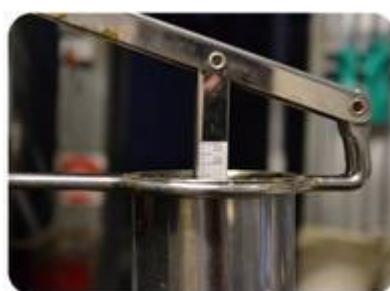
Table 4: New mix 97 goats commencing 16/08/16

Oaten	3.1	Bucket	20 lt
Lucerne	1.4	Bucket	20 lt
Barley	2.1	Bucket	10 lt
Bran	1.1	Bucket	20 lt
Linseed	0.6	Bucket	10 lt
Vinegar	1.0	Litter	
Dolomite	2.6	Cup	
Sulphur	0.5	Cup	
MgSO4	0.0	Cup	
Lime	2.6	Cup	
Beet	1	¼ Cup	
Diatomite	4	Cup	
Zinc	1 ½	¼ Cup	
Copper	3	Tsp	
Boron	3	Tsp	
Seaweed	5	Cup	

Date	Observation	Poo cake	Milk test	Conclusion
15/08/16	pHG area active Droppings changeable Eye: black crust	Thick : 26 mm Short fibres Cake very compact	Curd thick and not contracted No spiral Accumulation of curd in the tube's wall	Lack of calcium and phosphorus Check the efficacy of the energy in the ration Increase barley and minerals

Result	fE	gE	fP	gP	fF	sF	rS
	5	1	1	0	2	-1	-4

Potential changing: 9



1 – Interpretation

The ration is underperforming because the energy of the ration (f=5) is not fully transferred to the animals (gE=1). There is an excess of fermentable fibres (fF=2) and its value is much higher than the structural fibres (sF=-1).

The goats don't regulate their food intake effectively and eat too much.

2 – Changes

During milking time we will reduce complete ration to $\frac{3}{4}$ jug instead of 1 jug.

We increased barley and minerals in the mix (see new mix).

Date	Observation	Poo cake	Milk test	Conclusion
24/08/16	pHG area active Droppings: shapeless	Thick : 35 mm Long fibres (more than 4mm)	Incubator broken: no milk test	We respect rumination time



1 – Interpretation

We don't have enough symptoms to make a diagnosis.

Long Fibres in the droppings are maybe due to too rapid changes in the food.

2- Changes

We still notice pHG area active. Therefore, even if we cannot make any diagnosis, we decided to add ½ cup of bicarbonate of soda to the mix to try to get rid of this symptom.

Date	Observation	Poo cake	Milk test	Conclusion
29/08/16	Transparent urine	Thick : 30 mm No grain Short fibres	Incubator broken: no milk test	Herd in good condition We keep the same mix



1- Interpretation

We don't have enough symptoms to make an interpretation.

The richness of the paddock can cause the big heaps in droppings as well as transparent urine.

Date	Observation	Poo cake	Milk test	Conclusion
06/09/16	Herd in heat Urine less transparent	Thick : 20 mm Presence of grains Short fibres	Curd thick Presence of spiral Absence of deposit on the tube's test	The milk test prove the seasonal characteristics of the milk (more milk in spring but less rich)



1 – Interpretation

We don't have enough symptoms to make a diagnosis.

We notice that the herd need a few days to adapt themselves to the changes:
“the farmer needs to keep his eyes closed during the days after the changes”.

2 – Changes

Because we found some grains in the droppings cake, we decided to be more precise in measuring the quantity of the grain. Henceforth, we will use two 10 litres buckets with 0.9 litres of grain.

Table 5: New MIX 97 goats commencing 12/09/16

Oaten	1.8	Bucket	20 lt
Lucerne	1.2	Bucket	20 lt
Barley	2.1	Bucket	10 lt
Bran	1.1	Bucket	20 lt
Linseed	0.6	Bucket	10 lt
Vinegar	1.0	Litter	
Dolomite	2.6	Cup	
Sulphur	0.75	Cup	
MgSO4	0.0	Cup	
Lime	2.6	Cup	
Beet	1	¼ Cup	
Diatomite	4	Cup	
Zinc	1 ½	¼ Cup	
Copper	3	Tsp	
Boron	3	Tsp	
Seaweed	5	Cup	

Date	Observation	Poo cake	Milk test	Conclusion
11/09/16	One week of rain: herd inside Herd healthy	Thick : 22 mm Less grain than last week Short fibres	Curd thick Presence of spiral Absence of deposit on the tube's test	We keep the same mix



1 – Interpretation

The herd is healthy. We didn't notice any symptoms (pHG area inactive).

The droppings are good (not compact, good shape).

2- Changes

We notice that the herd during their feet treatment were interested in sulphur. We increased the sulphur in the ration.

In the same time, we reduced Oaten and Lucerne in the mix

24-OBSALIM's advantages for Holy Goat Organic Farm

The first OBSALIM observations of the Holy Goat goat herd revealed a strong rumen instability. The transformations in the rumen didn't seem to be optimal. There were significant nutritional losses confirmed by a lot of fibres in the droppings. A large part of the energy of the ration was not well used.

The first cause was a poor distribution schedule. The herd was fed first with concentrate on an empty stomach. By giving them hay first thing in the morning, we improved the efficiency of the ration.

The ration could be improved, as well, by decreasing the very energetic components. Therefore, we reduced Barley and Bran in the mix.

Progressively and through my observations, I saw the pHG area become less active. In fact, with more efficient basal ration, rumen pH became optimal for good microbial fermentations.

For Holy Goat Organic Farm, making these changes meant they saved money in two ways. First, there is less concentrate to distribute so less concentrate to buy. Secondly, the herd eat just what they need so there is less food waste.

Compared to last year in the same period, the herd was healthier. The daily milk average per goat in 2016 was superior to the daily milk average per goat in 2015. Is this due to OBSALIM? We cannot say. In fact, the weather was very different. Last winter was very dry so no pasture, just hay. Winter 2016 was very wet, so the herd could have access to the field.

The droppings cake is a good diagnosis tool to follow the rumen's vitality and digestion.

The milk test is also a good diagnosis tool to check the minerals intake and for Holy Goat Organic Cheese in particular, it is a good tool for cheese making. Indeed, if the energy of the ration is effective, the curd will be well-structured and we will have a strong cheese yield. Phosphorus on calcium report must also be effective. Calcium is necessary for curd coagulation, the phosphorus to its retraction. Calcium deficiency gives a curd without consistency. An excess of phosphorus gives a retracted curd, rubbery. A phosphorus deficit gives a right curd without winding and very fragile, so very low cheese yield.

Finally, OBSALIM is a natural method suitable for all the farms and especially to organic farms. It can be used on a daily basis by the farmer, without the need for expensive veterinary fees.

Conclusion

Holy Goat Organic Farm began in 1999 when Carla and Ann-Marie purchased 204 acres in Central Victoria.

Today they milk about 100 organically certified goats and make cheese marketed under the name *Holy Goat*.

At the beginning of July 2016, we attended an OBSALIM course with Bruno GIBOUDEAU. OBSALIM provides some tools to check the efficiency of the ration already in place and suggests keys to better adapt it to the herd. This method is simple and easy to use thanks to various tools (card games, book).

Thanks to this method, we understood the rumen's working and we could improve the efficiency of the ration by respecting the rumination time. We saw some good changes over a period of three months. The PHG area became less active and with less food the goats produced the same quantity of milk. Holy Goat team needs to continue this OBSALIM observations to keep the good results and over time improve them.

OBSALIM is already used by farmers throughout France and is extending its reach across the world. The experience at Holy Goat Organic Farm shows that the OBSALIM techniques can be used effectively and with good results wherever ruminants are farmed.

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Appendix

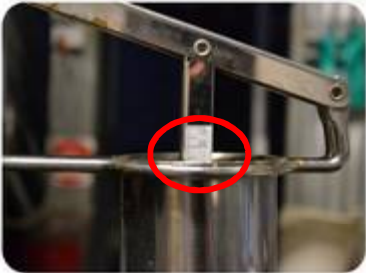
Annex 1: Poo cake



1 – Fill the potato masher with a mix of droppings.



2 – Clean the droppings with a colander to retain only solids elements undigested.



3 – Keep undigested elements in the potato masher and press to make a cake. Measure the thickness.



4 – Observe the poo cake. Is there a lot of fibres? Grains?



Annex 2: Milk test



1 – Prepare 5 test tubes: 2 with 100% of milk, 1 with 70% of milk, 1 with 50% of milk and 1 with 30% of milk.



2 – Fill test tubes to 100% with demineralized water: 30% of water for test tube with 70% of milk, 50% of water for test tube with 50% of milk and 70% of water for test tube with 30% of milk.



3 – Mix 1ml of liquid rennet with 2ml of demineralized water. Add 2 drops in each test tube.



4 – Shake quickly test tubes and put them in an incubator for 24 hours at 38-40°C.



FICHE D'ENTRETIEN*

**à reproduire et à compléter pour chaque entretien et à joindre en ANNEXE du Rapport*

Nom, prénom de la personne rencontrée : Lydia Savage - Onstedder

Nom et adresse Entreprise/Organisme : 112 Redesdale Road,
Sutton Grange VIC, 3448

Fonction occupée : Farm Worker

Signature de la personne rencontrée : 

Cachet de l'Entreprise/Organisme

Annex 3: Lydia's interview

Lydia is a young woman who works in Holy Goat Organic Farm. She comes from Wales, United Kingdom. I have chosen to interview her about OBSALIM.

Maiden: What is your relationship with Holy Goat Farm?

Lydia: Well, about 5 years ago, I was selling my farm's cheese in a market stall in London. I heard about them and I decided to send an email to have an internship. In 2014, I spent 6 months as intern in Holy Goat Farm and after this 6 months they gave me a job. Now, I'm a worker since 20 months.

M: Did you know OBSALIM before this OBSALIM training?

L: I had never heard about OBSALIM. I knew a similar technique, Cow's signal, without cards.

M: What did you retain in particular from this course?

L: It's really important to observe ALL the herd and not just one in particular. Also, we must work with what you have got. For example, sometimes we need a better ball of hay but we haven't so we need to complete with branches... The localisation affect of OBSALIM.

M: Do you think you are able to use this method now? Recognize the symptoms in the animals?

L: I think with a little bit of practice and the very good book, it should be no problem to use OBSALIM method.

M: What is your plan for the future?

L: This is a very good question! I'm only 28, I have still a lot to learn. I have the opportunity to stay in Australia and work here for 4 more years. 3 months per year, May, June, July, I use to work in my dad's farm in Wales. For the moment, I just want to work in other farms, other organic farms. I would like to be a seasonal worker, like this I can have more experience and maybe in another continent?

M: Will you use OBSALIM in your future?

L: Yes, of course! In all the other farms. I'll try, first, in my dad's farm, with cows. I need to buy some cards and OBSALIM book for my brothers.

M: OBSALIM for you could reduce the cost of management a farm?

L: Well, OBSALIM affords a big importance to rumination time. It's a second alimentation, we need to leave the herd ruminate. When they ruminate, they don't eat so it's less food to buy.

Observe the herd to detect symptoms before big problems arise is also good, we can reduce veterinary costs.

M: Do you believe in this method?

L: The answer is quick: yes!

M: Do you have something to add?

L: People should just try it and see if it works for them. Sometimes, they have something wrong in the herd and they don't know what it is, OBSALIM can say what is.

Nothing to lose, just try!



FICHE D'ENTRETIEN*

**à reproduire et à compléter pour chaque entretien et à joindre en ANNEXE du Rapport*

Nom, prénom de la personne rencontrée KERRY N BARTY

Nom et adresse Entreprise/Organisme : 114 REEDDALE RD.
SUTTON GRANGE VIC
Australia 3448

Fonction occupée : Farmer

Signature de la personne rencontrée : Kerry N Barty

Cachet de l'Entreprise/Organisme

Annex 4: Kerryn's interview

Kerryn and John are Carla and Ann-Marie's neighbours. They are sheep farmers. They breed about 20 thousand merinos and sell the wool. Kerryn attended this OBSALIM course in July so I decided to interview her to know a little bit more about their farm.

Maiden: Are you a farmer? Could you describe me briefly which kind of farm you have?

Kerryn: We have a sheep farm for the wool named *Beverley Merinos*. I am working here with my husband and my son. My principal job is look after lambs, prepare rams sales and sheep shows. During dry season, I give complementation made of oats and barley, twice a week, to the herd.

M: Why did you choose to attend this OBSALIM training in July?

K: OBSALIM could help for feeding of the sheep, give them the right thing and improve the results.

M: Did you know OBSALIM before this OBSALIM training?

K: I had never heard about this before, I was really excited to learn about this.

M: What do you retain in particular from this course?

K: A lot of things! The roughage is very important, ruminants need roughage to ruminate. There is also different type of hay, good hay and bad hay. So you need to adapt yourself with what you have. The pH in the rumen is a key point to control. If this pH is too acidic microbial fermentations are not optimal and there is waste.

M: After this course, do you think you are able to use this method?

K: Of course, I have all the elements for it.

M: Do you think OBSALIM is a method applicable to your herd?

K: Yes, during feeding out, we can observe the herd and identify some symptoms like pHG area active in order to make a diagnosis. It costs a lot, a couple of thousand dollars, to feed the sheep, to keep them going. It could be good if we can adjust the ration to the herd's need.

M: So for you OBSALIM could reduce the cost of management of your farm?

K: Sure! OBSALIM could help to adjust our ration. If you give too much grains or hay when the sheep don't need it is wasted and we lose money.

M: Do you believe in this method?

K: Oh yes, it is a logical method and everything makes sense.

M: Have you got something else to add?

K: Henceforth, I will open my eyes and I will talk to John and other farmers as well. It could be very interesting for them too.

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