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# ECONOMICS OF FEEDING DAIRY EWES

DAIRY SHEEP ASSOCIATION OF NORTH AMERICA – DAIRY SHEEP SYMPOSIUM 2023



Vriens Nutrition  
CONSULTING

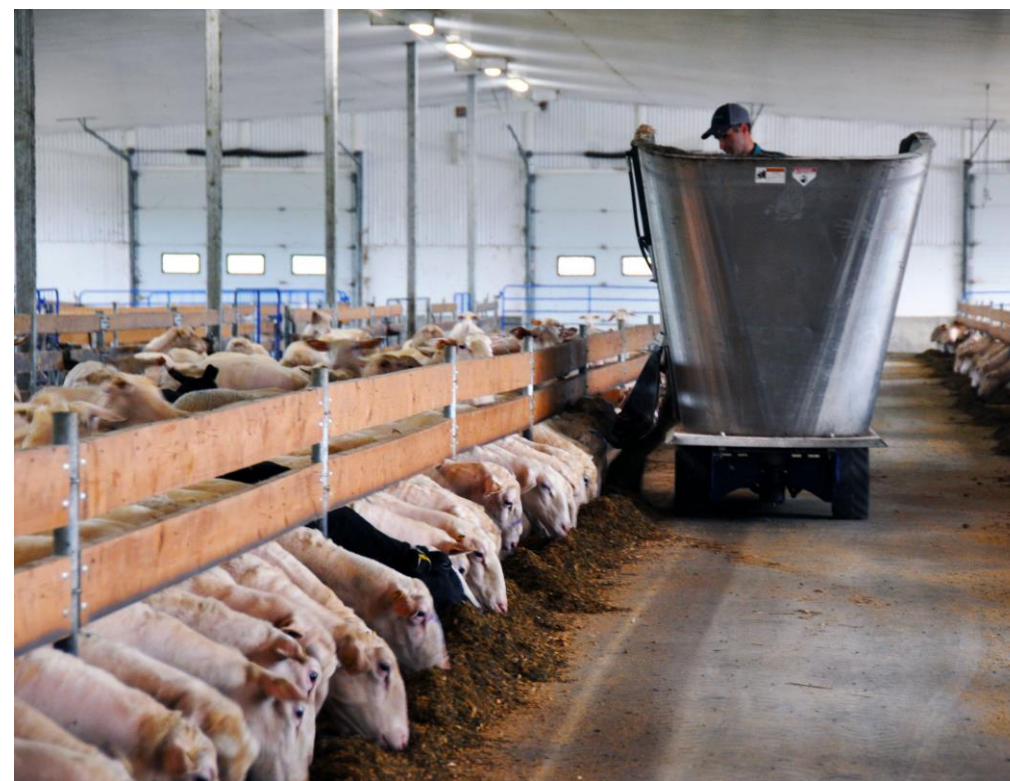
# INTRODUCTION

*Proudly Specializing in Dairy and Commercial Meat Sheep*



# TOPICS OF DISCUSSION

- Preparing ewes for a successful lactation
- Dry ewe nutrition and costs
- Lactation potential/peak milk
- Nutrition to support high vs. low production
- Return over feed and profit per ewe
- Importance of forage quality
- Setting goals
- Perspective from a producer



# THERE IS A LOT OF DIVERSITY IN DAIRY SHEEP FARMING

*There's not one way to farm dairy sheep...*

- Genetics/breed – the blue print
- Lactation and dry period length
- Days in milk at breeding or after dry off
- Year-round vs. seasonal milking
- Feeding strategies - TMR, component feeding, pasture
- Feed ingredients and feed quality
- Feed costs – level of purchased feed

**One thing we should all be doing the same is keeping track of numbers**



# WHAT DOES A DAIRY EWE NEED TO ACCOMPLISH TO BE PRODUCTIVE?



- Produce multiple healthy lambs
- Produce a high volume of milk
- Produce high components
- Maintain good udder health
- Have appropriate body condition
- Get pregnant at the optimal time
- Produce for multiple lactations

# SETTING HER UP FOR A SUCCESSFUL LACTATION

## ✓ Mammary tissue development

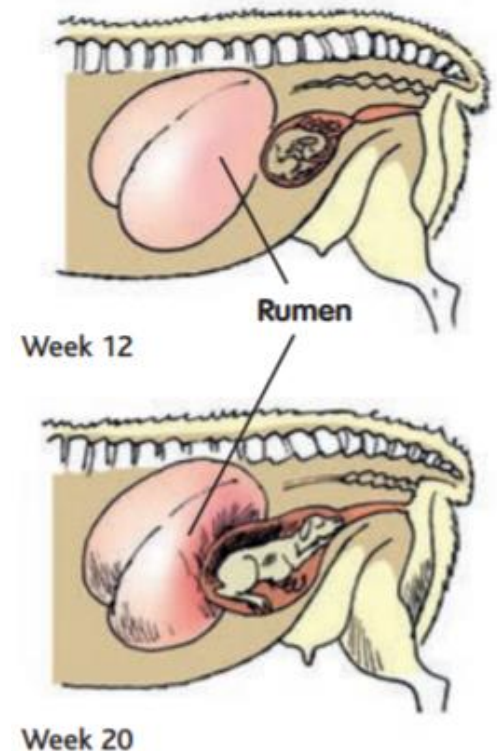
- Dry period is critical for maximizing milk in next lactation
- During the dry period mammary cells undergo growth and turn over
- Mammary growth enhances milk yield in the next lactation
- Late gestation to support the onset of colostrum and milk production

## ✓ Body condition

- Ewes should enter lactation with BCS of 3
- Provide adequate energy and protein in late gestation to maintain BCS
- Thin ewes struggle to reach peak milk
- Fat ewes metabolic challenges (pregnancy toxemia and prolapsing)

## ✓ Rumen transition

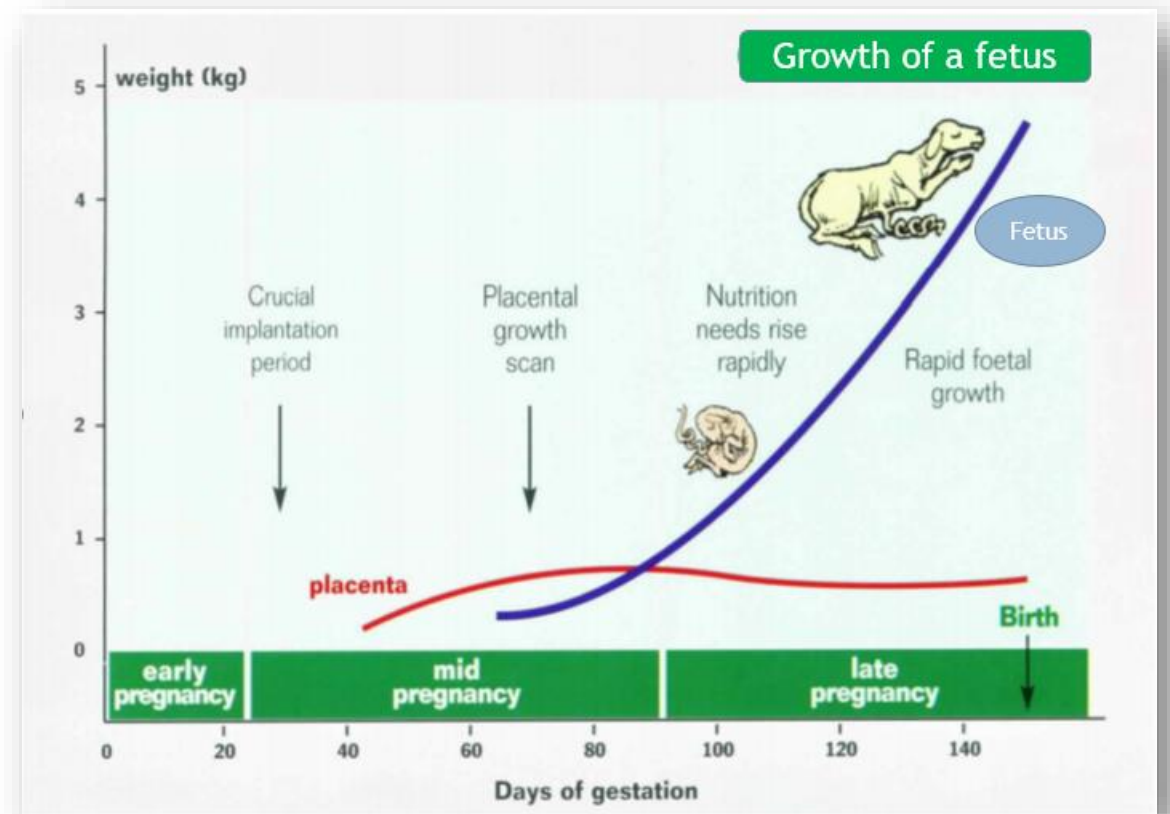
- The rumen microbes need time to adjust to higher concentrate levels
- Rumen acidosis or low rumen pH is a concern- lost opportunity
- Late gestation ration will act as the bridge between the far-off dry and lact ration



# WHAT SHOULD DRY EWE NUTRITION LOOK LIKE?

## For the average two month dry period:

- One month far-off (maintenance)
- One month close-up (increased plane of nutrition 4 weeks before lambing)
- Maintenance = nutrition required to maintain basic biological functions and maintain body weight
- In the far-off dry period feeding as to maintain body condition, requirements are low in mid pregnancy
- In late gestation requirements are high, ration should support fetus growth and the onset of milk production
- BCS should be 3 when she enters late gestation



# WHAT IS THE OPTIMAL DRY PERIOD LENGTH?

[J Dairy Res.](#) 2012 Aug;79(3):352-60. doi: 10.1017/S0022029912000337.

**Influence of dry period length on reproductive performance and productivity of Lacaune dairy sheep under an intensive management system.**

[Hernandez F<sup>1</sup>](#), [Elvira L](#), [Gonzalez-Martin JV](#), [Astiz S](#).

## **Study monitored milk yield and lambing to next conception interval**

### Study Highlights:

- Based out of Spain. Study included 6762 lactations (1-4) from 2005-2010.
- Dry periods that were very short (<30days) or long-very long (>120 days) were associated with the lowest milk yields
- Ewes with a dry period less than 60 days showed best lambing to next conception interval

### Study Conclusion:

- **30-60 days dry is recommended for lacaune ewes under intensive conditions**



# THE COST OF FEEDING THROUGH THE DRY PERIOD

## Dry Ewe Feed Costs:

Ewes	\$/tonne	CU Dry	FO Dry
Dry Grass Hay	\$ 200.00	0.00	2.00
Corn Silage	\$ 55.00	2.00	0.00
Haylage	\$ 80.00	2.00	0.00
Grain Corn	\$ 250.00	0.40	0.00
Soymeal	\$ 750.00	0.20	0.00
Premix	\$1,600.00	0.04	0.02
<b>Feed Expense/h/d</b>		<b>\$ 0.58</b>	<b>\$ 0.43</b>
<b>Total Feed Expense</b>		<b>\$ 17.52</b>	<b>\$ 12.96</b>

*This 2 month dry period =  
\$31/head*

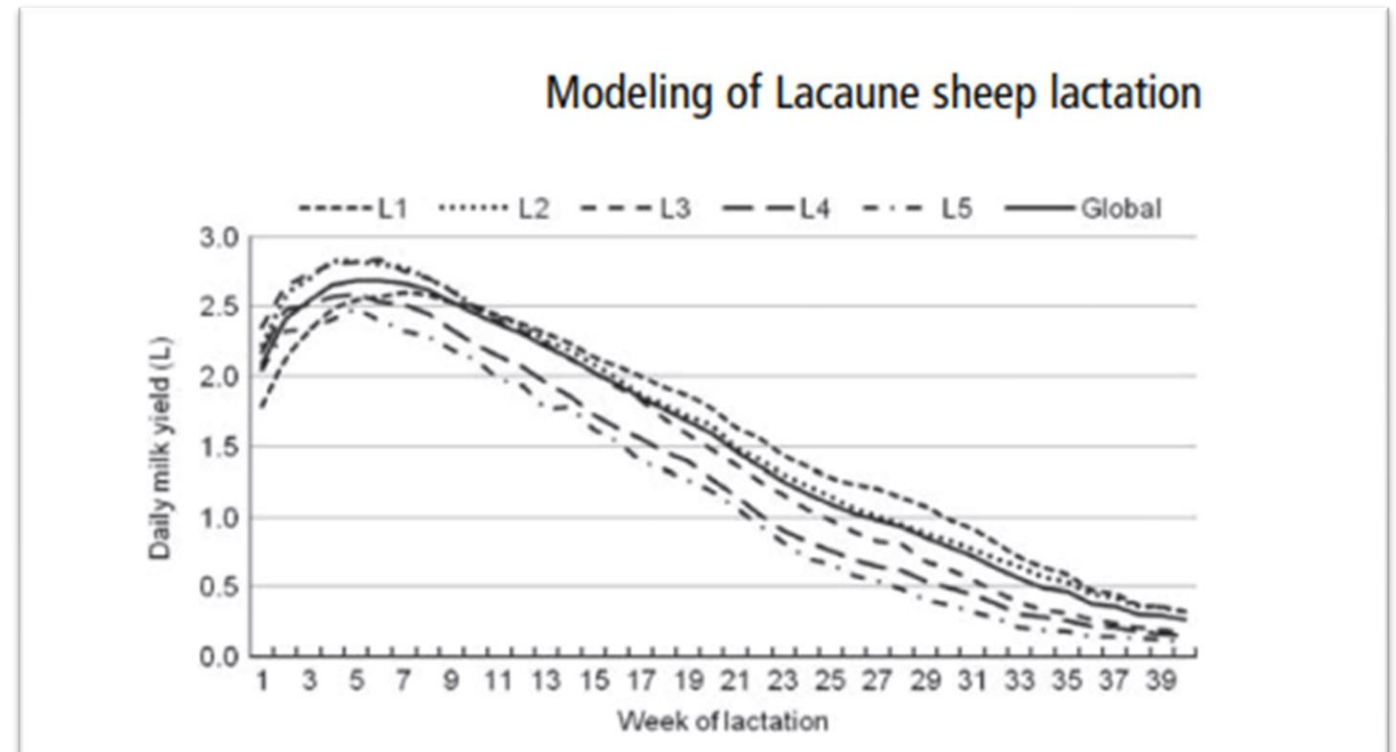
*Important to know these  
numbers based on your dry  
period length so you can  
subtract this cost from milk  
revenue to determine profit*

# LACTATION CURVE OF A DAIRY EWES

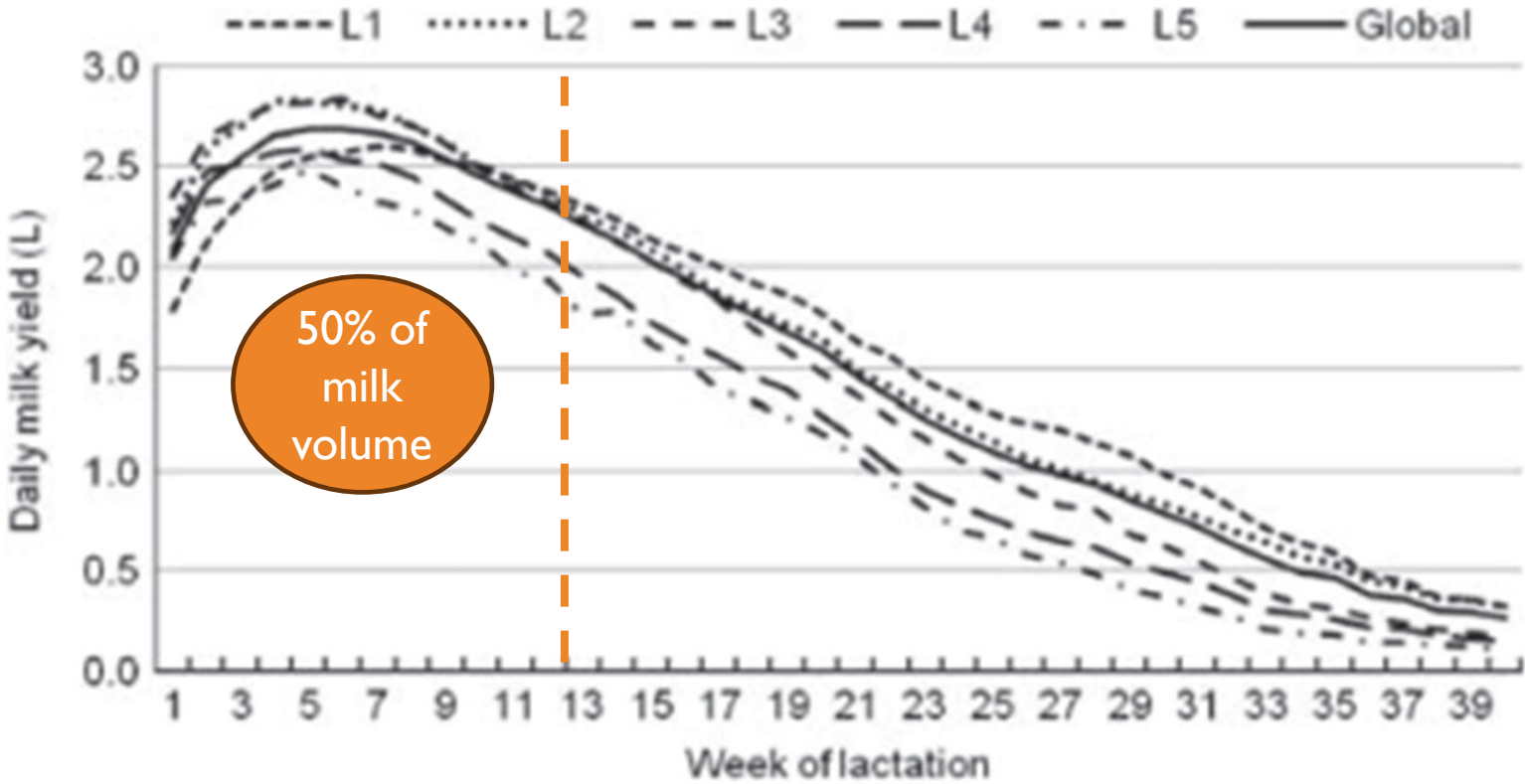
- Study looked at 7873 lactations (2012)
- Curve showed the usual lactation pattern
- Peak milk in mature ewes occurred around week 5
- Peak milk in the first lactation ewes occurred around week 7 (later, and smaller than older ewes)
- Milk yield data showed that in all lactations the sheep achieved 50% of the total milk yield during the first 3 months

Accurate mathematical models to describe the lactation curve of Lacaune dairy sheep under intensive management

L. Elvira<sup>1</sup>, F. Hernandez<sup>2</sup>, P. Cuesta<sup>3</sup>, S. Cano<sup>3</sup>, J.-V. Gonzalez-Martin<sup>1,4</sup> and S. Astiz<sup>5†</sup>



# Modeling of Lacaune sheep lactation



Body condition should inversely follow the milk curve

# NUTRITION TO SUPPORT MILK OUTPUT

## Early lactation

- Ewes respond well to increased nutrition to support peak milk
- Economical to push ewes for production - best ROFC
- Keep in mind the nutrition is only as good as the genetics

## Mid- late lactation

- Beyond peak milk, providing nutrition above actual milk output can cause too much weight gain
- High BC will impact conception negatively
- High BC will also contribute to metabolic challenges and lower milk next lactation
  - Early lactation is really the only time to have to decrease BCS



### Milking Ewes

Ewes High Ration: 60 50%

Ewes Low Ration: 60 50%

**120**



### Feed Costs:

<b>Feeding</b>	<b>\$/tonne</b>	<b>high rtn</b>	<b>low rtn</b>	<b>kgs fed</b>	<b>\$/day</b>
CS 2022 (37DM) #7	\$ 50.00	1.90	2.00	<b>1.95</b>	<b>0.10</b>
1c Hlg 2021 (53DM)	\$ 110.00	2.00	2.40	<b>2.20</b>	<b>0.24</b>
Dry Corn	\$ 250.00	0.70	0.20	<b>0.45</b>	<b>0.11</b>
Supplement	\$ 850.00	0.65	0.28	<b>0.47</b>	<b>0.40</b>
Premix	\$1,640.00	0.00	0.02	<b>0.01</b>	<b>0.01</b>
<b>Average Feed Cost</b>		<b>\$ 1.04</b>	<b>\$ 0.68</b>		<b>\$0.86</b>

### Return Over Feed Cost:

<b>Production Average L</b>	<b>2.31</b>
<b>Pay/L</b>	<b>\$ 2.13</b>
<b>Cost \$/L</b>	<b>\$ 0.37</b>
<b>Return/Lactating Ewe/Day</b>	<b>\$ 4.07</b>

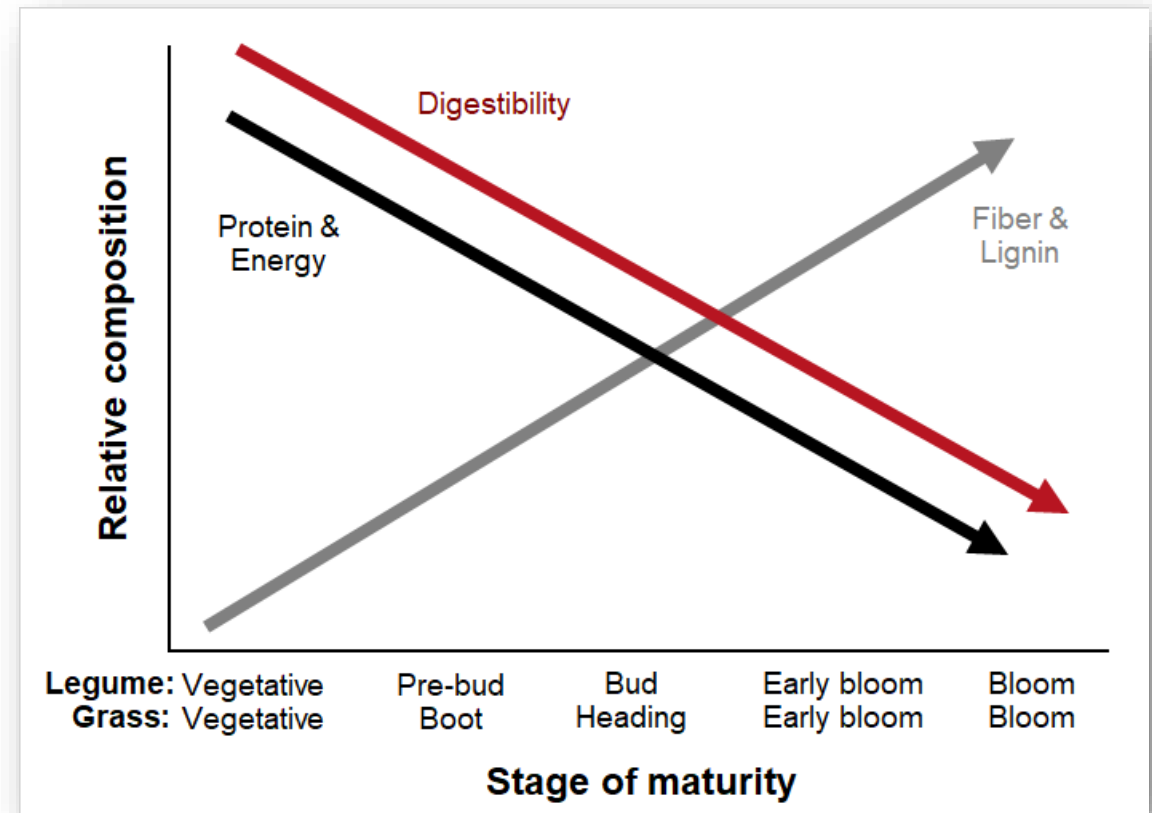
# THE IMPORTANCE OF FORAGE QUALITY-A LIMITING FACTOR?

**As a plant matures the quality of the feed stuff decreases:**

- Fibers increase (yield increases, plants grows tall)
- Protein decreases
- Minerals decrease
- Digestibility decreases (physical rumen fill)
  - Limits DMI

**Cost effective to feed high quality forage. Up to 50-80% of what sheep consume to produce milk is forage. If the forage is not good it will limit milk production**

**We can lower cost to produce a liter of milk with higher forage quality**



## Vriens Nutrition Consulting

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*Ruminant Nutrition For Sound Performance*



**Vriens Nutrition**  
CONSULTING

First Working group - Cressman (Sheep) - Lactating Ewes - Dairy Ewes - Lactating ewes

2023-11-05

### Recipe: DSANA Low Lact Ewe Example V2 2023

Ingredients	A.F. kg	C\$/Tonne
Mixed Haylage 2023	3.500	68.0000
Dairy Ewe Supplement 2023	0.450	850.0000
Corn Grain Ground (128)	0.550	220.0000
Corn (Parlour)	0.280	220.0000
<b>Totals</b>	<b>4.780</b>	<b>Cost C\$ 0.8031</b>

CNCPS Summary - v6.55	Supply	Balance	% Req.	Milk kg
ME Mcal/day	6.54	+0.04	100.6	1.82
MP g/day	266.5	+10.6	104.2	1.92

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2023-11-07

### Recipe: DSANA Low Lact Ewe Example 2023

Ingredients	A.F. kg	C\$/Tonne
Alfalfa Silage 2023	4.500	110.0000
Corn Grain Ground (128)	0.390	220.0000
Corn (Parlour)	0.280	220.0000
V1142 VNC Sheep Plus Px 07.26.23	0.030	1,600.0000
<b>Totals</b>	<b>5.200</b>	<b>Cost C\$ 0.6904</b>

CNCPS Summary - v6.55	Supply	Balance	% Req.	Milk kg
ME Mcal/day	6.65	+0.08	101.2	1.85
MP g/day	268.7	+11.3	104.4	1.93



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2023-11-07

### Recipe: DSANA Low Lact Ewe (Complete Pellet) 11.07.23

Ingredients	A.F. kg	C\$/Tonne
Dry Alfalfa Hay 2023	2.400	180.0000
Dairy Ewe Complete Pellet Ration 2023	0.650	550.0000
<b>Totals</b>	<b>3.050</b>	<b>Cost C\$ 0.7895</b>

CNCPS Summary - v6.55	Supply	Balance	% Req.	Milk kg
ME Mcal/day	6.52	+0.20	103.1	1.82
MP g/day	253.9	+9.3	103.8	1.81

## Profit/Ewe/Production Cycle

Production stage	Days	Cost/h/d	Total cost
Far-off dry	30	\$ 0.40	\$ 12
Late gestation	30	\$ 0.60	\$ 18
High lactation	120	\$ 1.15	\$ 138
Low lactation	120	\$ 0.75	\$ 90
			<b>\$ 258</b>

Average L/lact	Price/L	Lact days	Revenue
2.1	\$ 2.20	240	<b>\$ 1,109</b>

**Profit/ewe**

**\$ 850.80**

*Important to look at individual animals if possible to establish benchmarks for your flock*

*What does a productive ewe look like in your flock?*

# SETTING GOALS AND MAKING IMPROVEMENTS

## *Where do we go from here?*

- Genetics- ram selection is important, replacements are the future of your flock
- Culling- with data we can make more informative culling decisions
- Can we lower feed cost- feeding to actual milk output, opportunities to lower purchased feed \$
- Management- consistency, feeding management, animal comfort, air quality
- Build a good team- get your professionals on the same page – one common goal to help you succeed
- Forage quality- one of the keys to success
- Keep working out the numbers



## THE POTENTIAL WHEN EVERYTHING COMES TOGETHER

	2022	2021	2020	2019
<u>Average Production</u>	2.57	2.45	2.40	2.36
<u>Average Milk Protein</u>	5.50%	5.59%	5.58%	5.44%
<u>Average Feed Cost</u>	\$ 0.92	\$ 0.86	\$ 0.78	\$ 0.85
<u>Average ROFC</u>	\$ 4.75	\$ 4.41	\$ 4.36	\$ 4.01
<u>Average \$/L</u>	\$ 2.20	\$ 2.16	\$ 2.15	\$ 2.06

# DAIRY SHEEP ECONOMICS - INSIGHT FROM A PRODUCER

## Roadside Farm - Jeff Cressman - Wellesley Ontario

- What are some records you find value in keeping? For you, what are the most important numbers to keep track of in regards to feeding your sheep?
- How valuable do you think it is for you and your nutritionist to work together in order to make improvements in your flock? Such as digging into true feed intake, production, component output, costs etc.
- Do you see an importance in pushing fresh ewes for higher production even at a higher feed cost? Does the return on investment pay?
- If you have data on production, and the cost of production (particularly the cost of feed), would you ever think that your milk production had gotten too high, and consequently moderate the level of nutrition you present to your ewes?
- What (if any) technology you have applied on your farm to increase production?

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# THANK YOU

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