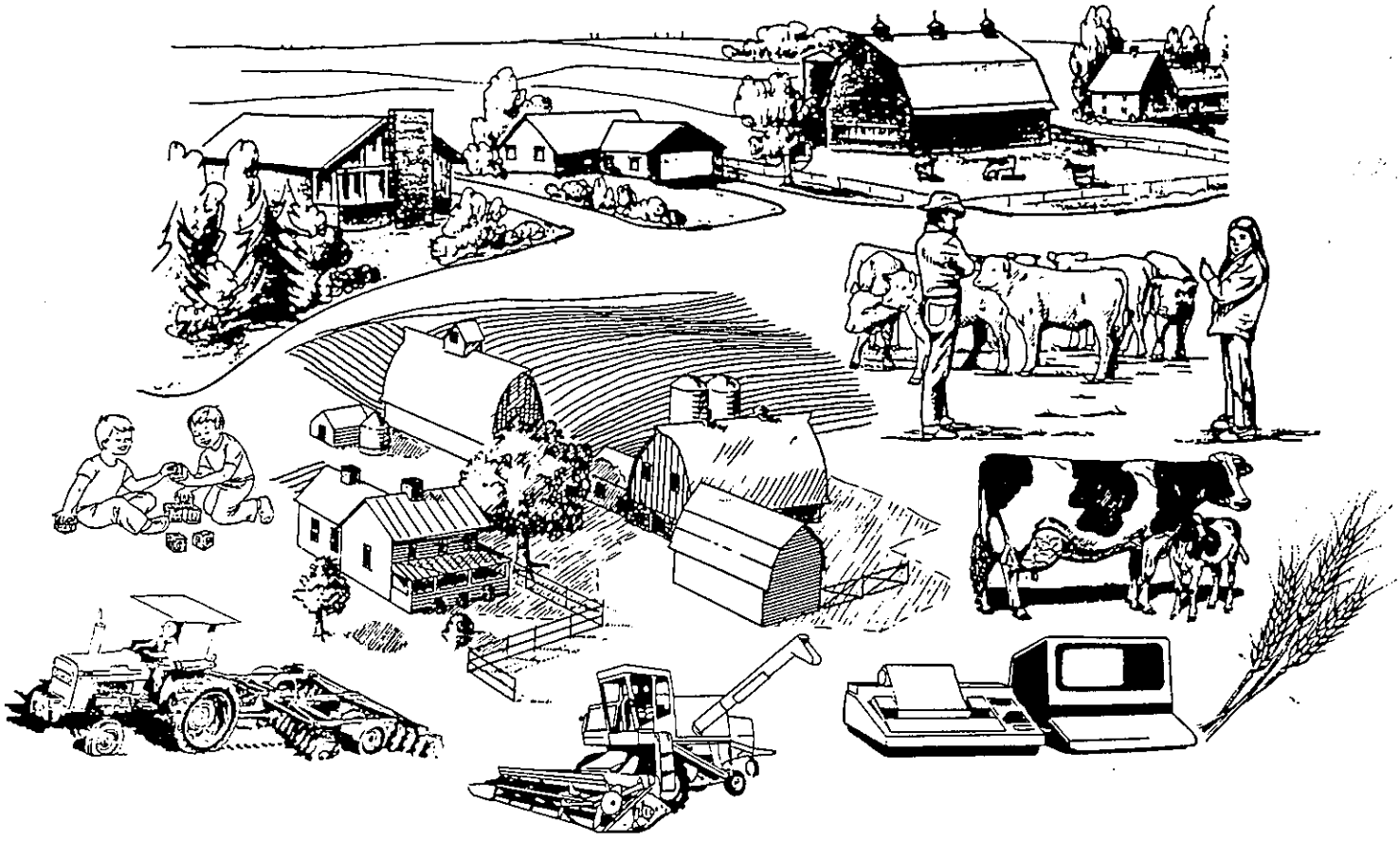
ISSN 1198-063X

Proceedings of the 28th ANNUAL

NORTH EASTERN ONTARIO AGRICULTURAL CONFERENCE

FEBRUARY 25-26, 1994



NEW LISKEARD COLLEGE OF AGRICULTURAL TECHNOLOGY

OATI

Ontario

TPC-NL

1994 CONFERENCE PROCEEDINGS

TABLE OF CONTENTS

The 28th Annual North Eastern Ontario Agricultural Conference and Trade Show

New Liskeard College of Agricultural Technology
February 25-26, 1994

TRADE SHOW "Products & Services for the Rural Community" - 2:00 pm - 9:30 pm, February 25 and 10:00 am - 5:00 pm, February 26

N.E.O.S.C.I.A. CHAMPIONSHIP FORAGE AND SEED SHOW AND THE POTATO SHOW - 9:00 am - 5:00 pm, February 26

N.E.O.S.C.I.A. ANNUAL MEETING - 7:30 am Breakfast Meeting, February 26

FARM SAFETY FOR THE WHOLE FAMILY

Temiskaming Farm Safety Association & Farm Safety Association Inc.
FRIDAY, FEBRUARY 25

7:00pm - 8:00pm	**First on the Scene/Premiers sur la scene**
8:00pm - 8:30pm	**Video - "Working in Ontario - Farm Safety"/Vidéo - "Le travail en Ontario - Sécurité Agricole"**
8:30pm - 8:45pm	**Video - "It Only Takes a Second"**

SPEAKER SESSIONS

SATURDAY, FEBRUARY 26

10:00am - 11:00am	**Total Mixed Rations (TMR) - A Panel** David Emiry, Emiry Farms Ltd., Massey Roger Fremlin, Frembar Farms, Echo Bay Daniel Olivier, Ferme Langvallon, Verner Martin & Diane Smits, Wakerobin Holsteins, Verner Moderator - Yvan Bazinet, Farm Management Specialist, OMAF, New Liskeard
11:00am - 11:30am	**Selecting the Best Grass for your Legume Mixture** Harvey Wright, Soil and Crop Advisor, OMAF, Guelph
11:30am - 12:00pm	**The Potential Impact of Age at First Calving on Profitability** Neil Petreny, Director, Field Services, Ontario DHI, Guelph

30 persons.

SPEAKER SESSIONS (continued)

1:00pm - 2:15pm	**Grazing Systems for Beef, Sheep and Dairy - A Panel** Darlene Bowen, New Liskeard Walker Riley, Brooklands Farm, Bracebridge Sandra Smyth, Willow Farm, Mattawa Klaus Wand, Powassan Moderator - Jim Johnston, Agronomy Section, NLCAT, New Liskeard
2:15pm - 2:45pm	**Evaluation of Pasture Mixtures at NLCAT** Jim Johnston, Agronomy Section, NLCAT, New Liskeard
3:00pm - 4:00pm	**Calving Management: Nature vs Technology** Dr. Mick Price, Professor and Chairperson, Animal Science Department, University of Alberta

BANQUET - 7:00 pm, February 26

"LOOKING AHEAD WITH OPTIMISM IN CHANGING TIMES"
Eleanor Wood, Norwood Holsteins, Troy

AWARDS PRESENTATIONS - N.E.O.S.C.I.A.

TMR - Panel Discussion

David Emiry
EMIRY FARMS LTD.
Massey

Emiry Farms Ltd. is a family operated dairy farm milking 65 holsteins. Heifers are all raised as replacements with excess being sold as bred heifers. The herd is supported by approximately 550 acres of crop land. Some four hundred acres of forages (trefoil/red clover/timothy and alfalfa/orchard grass mixtures) are grown for haylage as well as small and big bale dry hay. Barley rounds out the cropping program with 150 acres more or less being harvested annually and stored as dry grain.

Prior to switching to a mixed ration, the milking herd was fed on a ration of dry hay, haylage fed by a set of over-head conveyors into mangers in front of the tie-stalls where the cows are milked, and a home-made concentrate (barley, soybean meal, corn & minerals) from our mix-mill fed by hand four times daily.

In March 1992, we installed a "Chore-Time" concentrate feeding system and also put in two additional "flex" augers which drop a concentrate mixture onto the belts which used to carry only haylage. We also began top-dressing whole roasted soybeans to the fresh cows at this time.

This is not a true TMR but it is part way there and still allows us some flexibility to feed cows individually. At the same time it has reduced our incidence of stomach trouble, tends to get fresh cows onto feed faster and has reduced our time spent feeding manually substantially.

We hope that our production is steadily improving, and so it is hard to attribute the improvement in production since going to a mixed ration to that alone. However, I feel the change in ration has made us more efficient for the reasons mentioned already.

One area that I am not completely satisfied with is the body condition of the cows. By the time the cows are dried off, they tend to be more often on the thin side. This goes against the general trend with TMR's but it is the case in our herd. We are working on changing that with more grain in the ration through the latter stages of lactation.

All feeds used in this ration are analyzed so their proportions change accordingly but here's a typical sample of our feeding program:

TMR	75% haylage 18% barley 6% corn + minerals	mixed by mix-mill and dropped by flex-auger onto conveyor with haylage

(note: no soybean meal or other protein added here)

Chore-time concentrate	40% barley 14% corn 40% soybean meal + minerals

Protein % of the TMR varies between 7.75% to 8.25% from year to year depending on the forage quality. Protein % of the Chore-time concentrate varies from 19% to 23% from year to year depending on forage quality.

A TYPICAL RATION (ALL WEIGHTS IN KGS)				
DAYS IN MILK	45	105	165	255+
KG MILK PER DAY	40	34	30	19
MIXED HAY	3.0	3.0	3.0	3.0
"TMR"	21.0	23.0	24.0	28.0
CHORE-TIME CONCENTRATE	7.5	7.5	6.5	0
ROASTED BEANS	2.0	1.0	0	0

TMR - Panel Discussion

Daniel Olivier
FERME LONGVALLOM INC
R.R.#1, Verner, Ontario
594-9483

Information

- mixed commercial herd Ayrshires - Holstein
- produce 1,000,000 litre year
- one group TMR
- fresh cows top dressed with computer
- Luknow 285 bushel trailer mounted mixer
- cows fed twice daily

Ration currently mixed for 120 cows in pounds

2nd cut haylage	1100
Limestone	15
Corn	350
Brewers grain	1450
Corn silage	1200
Barley	500
HC Premix	11
Supplement Milk checque 40%	140

Benefits of Total Mixed Ration

- saving in feed costs by buying bulk commodity feeds
- improved reproduction efficiency
- better herd health
- fewer vet expenses
- increased cow longevity

TMR - Panel Discussion

Martin & Diane Smits
WAKEROBIN HOLSTEINS
Verner

Wakerobin Holsteins is operated as a partnership between Martin and Diane Smits. At the time the farm was purchased in 1978 there were approximately 22 cows milking an average of 5200 kgs. During the intervening years the number of cows, as well as, the yield per cow, increased to 36 records at 8700 kgs of milk per cow.

Over this same period we changed the forage harvesting program from dry square bales to round bale haylage, minimizing our need for hired labour while providing the herd with consistently higher quality forages. The grain ration was hand fed to the cows with all ingredients being top dressed four times a day. The main draw backs to this feeding system, were; that round bales were not well suited to our tiestall barn, and both the forage and grain feeding chores were labour intensive and time consuming.

We had been looking for possible alternatives to the feeding system for some time and had considered automating the grain feeding. This would only offer a partial solution to our problems since it did nothing to address the concerns we had with the forage feeding program. We were interested in the possible advantages of a total mixed ration (TMR) and had been monitoring the development of "TMR" technology as it applied to small herds for some time. The challenge for someone considering "TMR" while maintaining their commitment to round bale haylage, is to find an efficient way of processing the forage into a mix.

In late October 1993 we hosted an on farm demonstration of a Supreme Model 500 cutter mixer and on the basis of the performance of the mixer that day, round bale haylage "TMR" became a viable alternative to our current feeding program. Since the mixer was delivered late in December, we have been busily making the necessary changes to the feedroom and installing the various augers and conveyers needed to make a successful transition to a total mixed ration.

Our experience with "TMR" is only at the introductory stages, however; we are pleased with our decision at this time and feel confident that our objectives, both short and long term, will be achieved.

OBJECTIVES

Short Term:

- Reduce labour requirement for feeding
- Even out bale to bale fluctuations in forage quality
- Reduce forages being dragged under cows and wasted
- Simplify feeding and increase accuracy
- Increase intake

Long Term:

- Increase herd performance 5-10% (milk, fat, prein)
- Lower unit cost of production by investigating alternative feed ingredients ie. brewer's grain
- Increase number of cows milked
- Increase number of milkings per day to three times (generally more productive use of available labour)

PROJECTED BUDGET

Supreme Silage Mixer Model 500	50%share	$16960.00
James Way TMR Mate Feed Car		$ 5350.00
Feedroom alterations and related equipment		$10500.00
Miscellaneous (moisture tester scales...)		$ 1000.00
TOTAL		$33810.00

Selecting the Best Grass for your Legume Mixture

Harvey Wright
Soils and Crops Advisor, Wellington/Waterloo

Publication 296, Field Crop Recommendations for Ontario recommends six different grass species in various mixtures for hay and silage. Forty one different varieties in total are recommended within these six species. And yet the great majority of forage fields for stored feed contain only one grass-timothy. Timothy accounts for 70% by weight of the sales of forage grasses of recommended species. Are there good reasons for this emphasis on timothy, or do these other grasses have something to offer? I want to look at the alternative grasses, their strengths and weaknesses, to help you decide whether you should be considering something other than timothy on at least part of your acreage.

Bromegrass

Bromegrass is a grass that at first glance should be grown on more acres. Its a hardy grass that seldom winterkills. It won't grow on quite as wet a soils as timothy, but it does better on droughty soils. If you are late harvesting and brome has headed and is flowering, it will have better quality than timothy at the same stage. Remember that brome flowers 7 to 10 days before timothy, so you should be aiming to cut it at an earlier calendar date.

In my experience, bromegrass use is held back by one significant factor - difficulty in seeding this fluffy seed. People that have a special brome box, and can place the seed about one half inch deep in the soil get good stands. Others broadcast it on the surface; or seed it with the oats. Seed is either too shallow or too deep, and poor stands result. Often it is seeded at far fewer seeds/acre, because a lb. of bromegrass contains only 1/9 as many seeds as timothy does. Bromegrass often costs twice as much per lb. as timothy, and this keeps seeding rates down. The result is that brome stands are often thin and patchy early in the stand. Stands will thicken up over three or four years, but legumes may be thinning before brome gets going well.

While bromegrass, from a yield and a feed quality point of view, is a good grass, I think its use will always be low unless more people purchase seeding equipment that will handle this grass properly.

Orchardgrass

If any grass is going to challenge timothy, I think orchardgrass has the best chance, especially on dairy farms. It has great seedling vigour, and getting a stand is not usually a problem. It's easier to seed than brome, although not as easy as timothy. Its regrowth is fast and vigorous, even in hot, dry weather.

There are three things to watch with orchardgrass to avoid disappointment. First, it requires fairly good drainage, and does not tolerate ice well. It tolerates wetter soil than does alfalfa, but not as wet as red clover. If given the wrong conditions, orchardgrass will winterkill.

Second, it heads out much earlier than timothy. If you cut orchardgrass when you normally cut timothy, it will give you lower quality hay that's not very palatable. So it fits best as silage. Do consider later heading varieties. Kay is a proven later variety in the north, and the new variety OKAY in test plots, also looks good.

Third, orchardgrass has a tendency to push legumes, so keep the seeding rate down at two to four lbs. with legumes, and apply enough potash to keep legumes strong and healthy.

Farms with good drainage, early harvest and a need for strong grass regrowth during the summer should consider orchardgrass on part of their acreage.

Reed Canarygrass

This is a very intriguing grass. It has some strong features which should make it a very useful grass, particularly on the north, but it also brings with it some major problems that are holding its use back in Ontario.

What do I like about this grass? First, the new varieties, especially Palaton and Venture, have overcome the alkaloid problems that made the old reed canary varieties poor feed. When cut at the boot stage, reed canary can now challenge the other grasses for quality. Secondly, this grass is very adaptable - it will grow well on soils from well drained to poorly drained. Its summer regrowth during hot, dry weather is pretty good - well ahead of timothy and brome. It grows well with alfalfa - it is not pushy like orchardgrass, and yields are usually higher than any other grasses. Reed canary will take cold and icing and flooding without winterkilling.

But there are some major concerns. Seedling vigour is low, and it can be difficult getting good stands quickly. Seed quality (germination) must be high. We seem to need seeding rates of 5 or 6 lb/acre with a legume. Seed of the quality varieties is costing $5.00 or $6.00/lb. making this an expensive grass, and there is the quality problem.

The quality problem because of alkaloids has been overcome, but there remains the quality problem if this grass is cut late when fully headed. All too often, reed canary is planted on wet land. By the time the land will carry harvest equipment, reed canary is six feet tall and useful only for bedding. Like bromegrass, reed canary is 7 to 10 days earlier than timothy, and must be cut by the time heads are emerging to give quality feed.

I think reed canarygrass has a place. It may be too expensive and slow establishing to seed in three year alfalfa stands. In the south, we are looking at it seeded on better drained land so it can be cut on time; for long term stands fertilized with nitrogen from manure or fertilizer; and on fields where pH or drainage are not suitable for alfalfa.

Tall Fescue

I wish I knew more about this grass. I see it used successfully in grass waterways, ditchbanks and buffer strips where its strong root system holds the soil in place. It is used in paddocks and exercise areas where it tolerates heavy tramping better than other grasses. It is seeded on roadsides where it lives for years and keeps many weeds from establishing. But I don't see it seeded in fields to feed dairy and beef cattle in southern Ontario. In parts of the U.S. considerably farther south, it is a major forage grass, especially for beef cattle. The problem of endophyte infected seed and resulting poor cattle performance may have reduced use of this forage. Today, it is easy to purchase endophyte free seed.

In the Forage Committee trials in northern Ontario, tall fescue has yielded well, right at the top compared to other grasses. It has been a very persistent grass, surviving very well. It grows over a wide range of drainage. It tends to have a somewhat stiffer leaf than other grasses; but this feature means that windrows dry somewhat faster. I would like to see this grass checked out for animal acceptance; certainly from a production point of view, it should be a useful grass.

Meadow Foxtail

While this grass is recommended, I don't think it has much to offer for hay production. It is simply too early, heading out after mid-May. Recent evidence from British Columbia suggests that cattle performance is poor if heads are present when meadow foxtail is cut. It will tolerate the wettest of soils, but these fields often cannot be cut until meadow foxtail is far too mature. It <u>may</u> have a role as pasture, but not as stored feed.

Perennial Ryegrass

Perennial ryegrass has been bred in parts of the world with warmer winters than we have, and often it does not overwinter will in Ontario. This is the major reason why ryegrass is not recommended here. In addition, in southern Ontario, production is low during hot, dry summer weather; ryegrass actually is more suited to northern Ontario climate if it would survive the winter.

There is another problem with ryegrass in alfalfa mixtures. Alfalfa should go into the winter with 12" or more of top growth, while perennial ryegrass survives best if it is cut short going into winter. Otherwise smothering is a major problem.

In Southern Ontario, some people are seeding some ryegrass with another grass such as timothy or brome, mainly because ryegrass is a very palatable high quality grass. Since it does not usually survive more than two years, the other grass will have to fill in as ryegrass dies out.

Some of the turf type ryegrass varieties are showing better hardiness than forage types, and may be useful in pasture mixtures, particularly for sheep.

Timothy

And so we are back to timothy, the most popular grass in Ontario. This is probable because it's easy to seed and low in cost, especially "per seed". We usually get good stands, partly because we plant so many seeds. It tolerates a wide range of drainage conditions. and because it is a later heading grass, one can cut it later by the calendar than the other grasses, and it will still be at a reasonable stage of maturity for quality.

But timothy is not perfect. Most if its yield is in the first cut, and yield can be very low in the regrowth in hot, dry weather. Orchardgrass, tall fescue and reed canarygrass all have more yield in the regrowth. Good stands of brome, reed canarygrass and tall fescue usually outyield timothy. And if you want a "dual purpose grass" for both hay and pasture, orchardgrass has much faster regrowth. Timothy harvested in the early boot stage each year sometimes thins out seriously due to the early cutting.

Mixtures of Grasses

There has been very little research in recent years to answer the question - "Is there an advantage for hay or silage to mixtures of more than one grass with the legume?" There are a few grass mixtures that I see farmers planting, for a variety of reasons, which may or may not result in higher yields:

- timothy with brome, to improve yield until brome thickens up.

- timothy with reed canary, to improve yield until reed canary thickens with creeping; and to reduce cost by lowering reed canary seed rate.

Timothy will continue to be the major grass, but on part of your acreage, especially where earlier cutting is possible, and you want more summer growth, some of these other grasses should be considered.

Potential Impact of Age at First Calving on Profitability

David Kelton, Kerry Lissemore and Neil Petreny
Ontario Veterinary College, University of Guelph
Ontario Dairy Herd Improvement Corporation

INTRODUCTION

The information presented today is a summary of a preliminary analysis of Ontario DHI animal performance records from 1992. Our objective is to share with you some observations about the trends demonstrated by the data. We will review the results in two key areas; the current situation in Ontario regarding age at first calving and the potential profitability based on age at first calving.

AGE AT FIRST CALVING - AT LEAST 3 LACTATIONS

Chart 1 shows the distribution by age at first calving for all Holstein animals with at least 3 lactations. The data set includes slightly more than 81,000 animals who completed lactations in 1992, on both official and unofficial Ontario DHI programs. Holstein animals with at least three lactations were selected for this presentation so that a fair comparison is possible when evaluating the dollars per day of life, as we will show shortly.

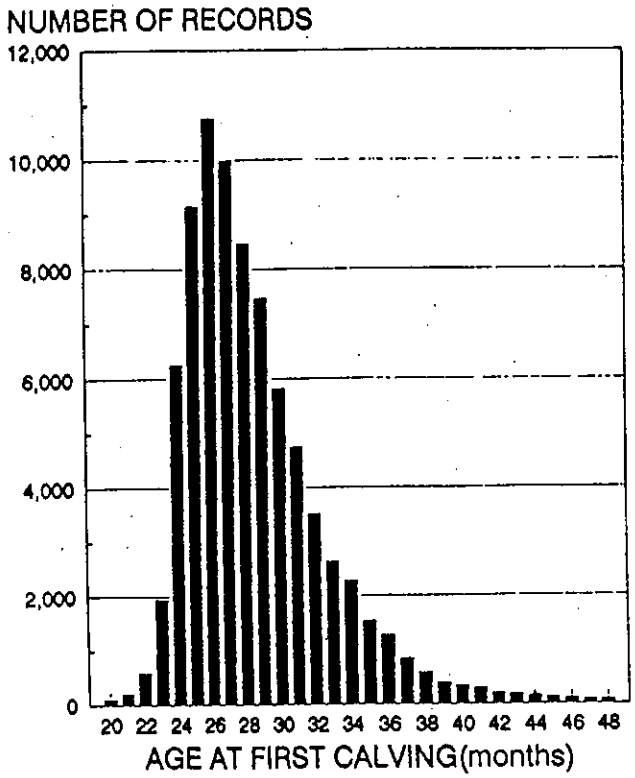
The mean age at first calving for this group is the same as the provincial average for all animals in 1992 at 29 months. The distribution of age at first calving is skewed noticeably towards the higher age categories. One of the key issues that the data demonstrates is that calving at 24 months of age is attainable. In fact the data shows that about 10%, or 8,000 of the 81,000 animals in the sample, are calving on or before 24 months of age.

MILK PER DAY OF LIFE - AT LEAST 3 LACTATIONS

The next step is to correlate the value of age at first calving. **Chart 2** shows the milk per day of life for the same 81,000 Holstein animals from Chart 1. To a large degree the chart data says it all. It is very clear that milk produced per day of life is maximized for animals that calve at about 24 months of age. The trend towards reduced production per day of life continues from about 24/25 months of age up to 48 months at first calving.

Distribution of Age at First Calving

Chart 1

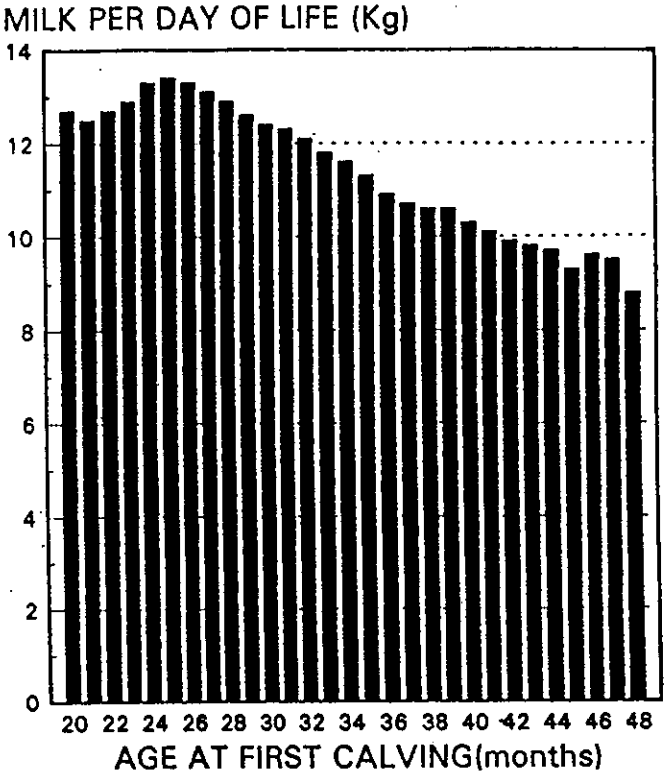


MILK PER DAY OF LIFE

BY AGE AT FIRST CALVING

(Lactation 3+ Records)

Chart 2



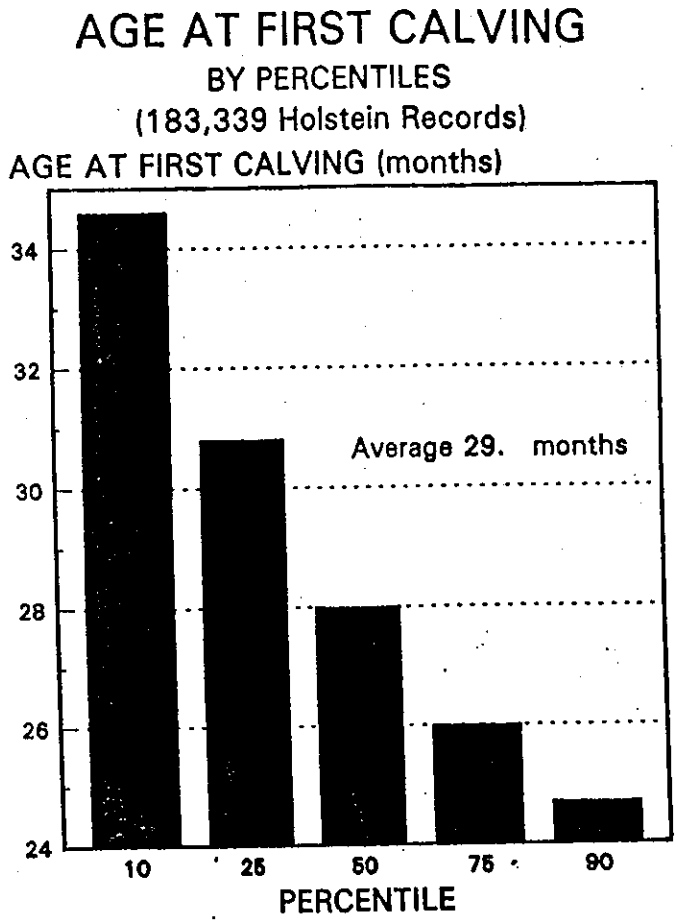
Let's put this in a financial perspective, one that each of us can understand and relate to more easily. There is about a 1 Kg difference in milk per day of life between an animal that calves at 24 months of age and an animal that calves at 29 months of age. If you extend that difference over an animal that has three lactations (5 years of age), this would result in an 1,800 Kg of milk production difference between these two animals. Using a milk price of $55/Hl, this is equal to about $1,000 per animal difference in the value of milk produced.

This is based on the assumption that all other factors are equal. However, we also know that it costs more to raise animals to 29 months of age than it does to raise animals to 24 months of age.

1992 AGE AT FIRST CALVING - ALL HOLSTEIN ANIMALS

Chart 3 shows age at first calving by percentiles for all Holstein animals with completed records (183,000). Similar to the 3+ lactation animals, about 10% of the animals calve at less than 25 months of age. The average is 29 months, but the skewed distribution results in a 50th percentile of only 28 months.

Chart 3



Again, let's try to put this into a financial perspective, which is of great importance to each of us. We will look at the cost of the 10th percentile group (the bottom 10% of animals) and estimate a loss productivity value, this time only looking at the cost of raising the heifer, and not lost production value. Let's start with an assumption that it costs about $1.50 a day to raise a heifer. This is an arbitrary value and costs in various studies have placed the cost as high as $4.50 a day depending on the study.

If we were able to shift the bottom 10% which averages about 34.5 months at first calving to the provincial average of 29 months, what are the potential economic benefits? The average savings per animal would be $202.50 per animal (4.5 months X 30 days X $1.50/day). The cumulative value of 18,000 animals is $3.65M. If this is extrapolated to include all animals in Ontario (assuming the same distribution in herds not using DHI services) the total value would jump by 50% to nearly $5.5M.

On an individual farm basis, if your age at first calving is near the average of 29 months instead of closer to 24 months, what would this mean on an individual basis? If we use the same calculations and costs as above and assume that your age at first calving was reduced to 24.5 months the savings would be over $3,000 (45 cow herd with 15 heifers per year at a cost of $202.50 per heifer).

GROSS REVENUE PER DAY OF LIFE - BY HERD PRODUCTION LEVEL

Chart 4 shows a distribution by production of about 5,000 DHI herds. Each group contains 995 herds, or about 20% of the herds using Ontario DHI services. The data demonstrates significant differences in gross revenue per day of life by average herd production. There is a 50% difference in gross revenue per day of between the top and the bottom group, which mirrors a similar 50% difference in average herd production. This shows that in higher producing herds the cows earn more revenue per day of life. This is not unexpected.

AGE AT FIRST CALVING - BY HERD PRODUCTION LEVEL

Chart 5 provides a breakdown of age at first calving by production level of the herd. While the trend towards lower age at first calving in higher producing herds is not surprising based on the previous data, what is surprising is the considerable rise in age at first calving for the lowest production group. The lowest production group has an age at first calving nearly 3 months longer than the next group.

The spread between the top four production groups is significantly tighter, with less than 2 months of age difference between the 4 groups.

Chart 4

GROSS REVENUE PER DAY OF LIFE
BY HERD PRODUCTION LEVEL
(n = 995 herds at each production level)

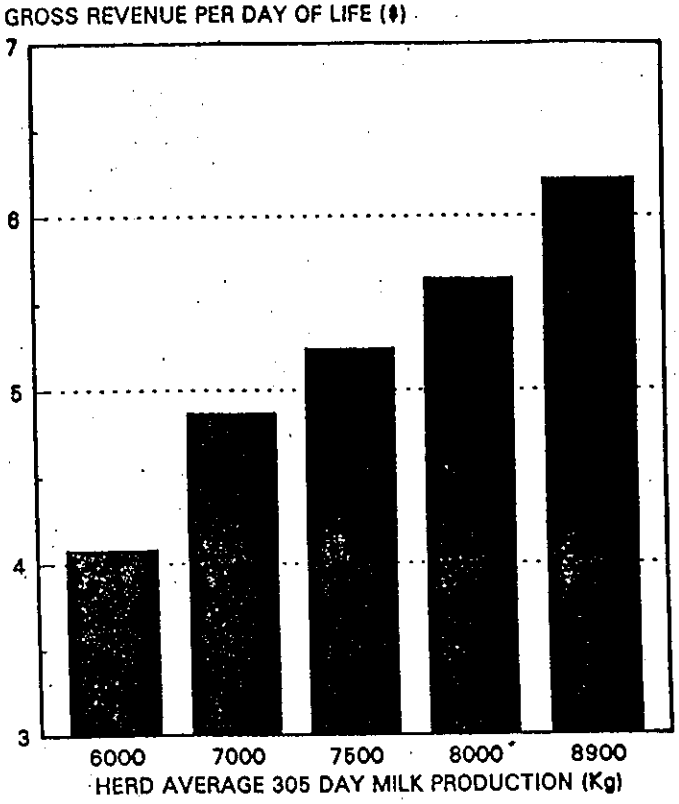
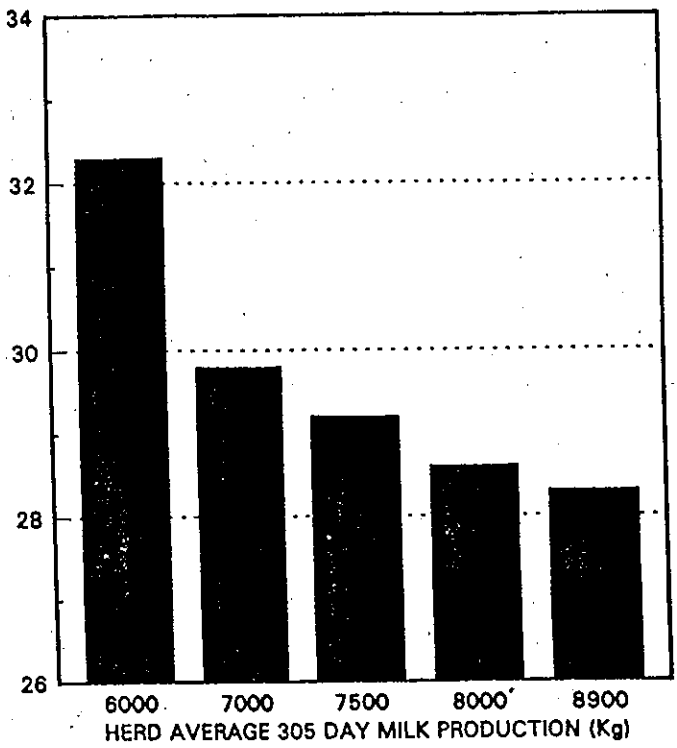


Chart 5

AGE AT FIRST CALVING
BY HERD PRODUCTION LEVEL
(n = 995 herds at each production level)



SUMMARY

There is a wide distribution of age at first calving with a significant number of animals calving in excess of 30 months of age. The data shows that about 10% of all Holstein animals using DHI services in 1992 calved at an age of less than 25 months. The 24 month target for age at first calving is attainable.

Milk production per day of life is maximized when an animal calves at about 24 to 26 months of age and declines in a linear fashion as the age deviates from this target. Gross revenue is directly correlated to the milk per day of life trends.

A high age at first calving is costly to the Ontario dairy industry in two ways: lost revenue by having a large segment of the industry with age at first calving in excess of 30 months; and increased costs by raising animals for 3 to 5 months more than is necessary to maximize profit and reduce costs of raising replacements.

Higher production herds on average have a lower age at first calving than do lower production herds and also have a higher gross revenue per day of life than do lower production herds. (It should be noted that other factors may also contribute to the difference in gross revenue per day of life between high and low production herds).

The information presented in the charts is summarized data. It is important to recognize that this is only a preliminary analysis.

Grazing Systems for Beef, Sheep and Dairy - Panel Discussion

Claude and Darlene Bowen
WINDENBOW FARMS, R.R. #3
New Liskeard, Ontario P0J 1P0
(705) 647-7710

1. What types of livestock graze on your farm?

   We have beef cows, replacement heifers and horses.

2. Which breeds of livestock do you use and why?

   Our herd consists of both purebred and grade cattle. A small number are registered Charolais, which are used to supply replacement heifers and bull calves which are sent to the bull test station. Most of the cows are grade Charolais and Simmental cross. Nine to fifteen heifers are retained each year for replacements. Remaining calves are sold at weaning. The herd sire is registered Charolais.

   The Charolais gives us large-framed, heavily-muscled animals that gain well. Our average adjusted weaning weight was 700 lbs for the 1993 season. Charolais winter well, calve easily and are excellent mothers. The line we use has good milking ability.

3. How many of each type of livestock graze on your farm?

   31 cow/calf pairs
   9 replacement heifers
   1 bull
   2 Percheron horses

4. Please describe your grazing land.

   Our farm is 160 acres, fully cleared, flat and tiled every 50 feet. Approximately 115 acres are used in the summer rotation; 45 acres are in permanent pasture. A 65 acre hay field is used after the first hay cut. The 45 acres of permanent pasture is on the east side of the farm running in half mile long paddocks north to south.

   The perimeter of the permanent pasture is fenced with 8 strand page wire, with an electric wire on top. The three interior paddocks are 15 acres each, divided with electric fence. A walkway, 20 ft wide and fenced with page wire with electric on top runs from the buildings out to the pasture.

   A small 5 acre permanently fenced pasture accommodates the 2 horses. This horse pasture is used for 2 to 3 days between rotations. The cow herd helps keep this pasture manageable

for the horses. The amount of available forage in that pasture determines the length of the rotation.

An additional 2 acre paddock is available for a horse rotation or to accommodate distressed animals that find it too difficult to make the trip out to the regular pasture. It is also used for late calving cows with very young calves.

5. Describe your targets for stocking rate, stocking intensity, number of days per paddock, and number of days of grazing per season. Include number of pounds of animal/acre if you consider it.

The stocking rate is approximately 2.8 **acres** per animal for the whole grazing season. The stocking intensity is approximately 2.7 **animals** per acre (0.37 **acres** per animal) on the main pasture rotation. Normal rotation is 10 days per paddock.

The stocking intensity for the auxiliary field of 65 acres is 1.5 animals per acre. In mid summer this field is employed for a 2 to 3 week period to relieve the pressure from the main rotation. After this period it becomes the 4th paddock and moves into the regular 10 day rotation pattern.

Number of grazing days per season varies every year. It is approximately 130 days, from May 24 to September 30. Pastures are still used and grazed after the end of September but dry feed is offered as a supplement.

6. What levels of production do you expect per acre for a whole grazing season, both in tonnes of forage/acre and pounds of animal gain or amount of milk produced per acre?

We expect average production of 500 lbs of gain on a 200 lb calf. We also expect the cows to maintain an average weight of approximately 1500 lbs each.

500lbs/calf x 31 calves = 15,500 lbs

This total gain is from 45 acres, divided into three paddocks of 15 acres each, used for three to four rotations each, plus probably three rotations on the 65 acre hay field. The 110 acres is producing at a rate of about 141 lbs of calf/acre, plus a cut of hay, plus maintenance of the cows.

7. What species and varieties of grasses, legumes and other forages do you prefer in your current grazing system?

We have timothy, red clover, white clover, orchard grass and Kentucky bluegrass. A high concentration of quack grass and trefoil has crept in unassisted. By keeping the pasture clipped in the early spring/summer it keeps the forage short, tender and more palatable. Clipping also effectively controls

thistles and burrs.

8. Describe your watering system for grazing animals.

A 150 gallon stock tank with a float is located near the buildings, about 1/2 mile along the walkway from the pastures. Water comes from a 300 ft drilled well with a 3/4 hp submersible pump. An energy-free waterer at the barn will be used in future as the herd will have access to the barn in summer. There are no streams or ponds on the property.

9. How long has it been since your pastures were ploughed?

The pastures were ploughed, then planted in 1986 with a mixture of timothy, red clover, orchard grass, Kentucky blue grass and white clover.

10. Describe your pasture fertility program.

Soils were tested in the spring of 1993. We have not spread commercial fertilizer or lime since the pastures were planted. No manure has been applied since the fields became pasture in 1988. Pastures are harrowed every spring to distribute manure and loosen the sod. Pastures are clipped after the first rotation to aid in weed control and to keep up production of tender forage.

11. How long have you been using your current grazing management practices and what changes, if any, would you like to make in the future?

We have used this rotation system for 7 years. We will fertilize the pasture this spring and reseed bare spots that occur from winter kill and animal wear and tear. In the near future we would like to plough and level our farthest paddock as it has some damage by pesky ditch beavers.

Grazing Systems for Beef, Sheep and Dairy - Panel Discussion

Walker, Joane and Phil Riley
BROOKLANDS FARM, R.R. #6
Bracebridge, Ontario P1L 1X4
(705) 764-1765

1. What types of livestock graze on your farm?

   Our pasture project is run in cooperation with the Bogart family, Broadview Farms, Windermere. They supply beef cattle; we supply the pasture and supervision. It works great.

2. Which breeds of livestock do you use and why?

   Crossbred Hereford/Simmental/Charolais cows which had calved in January, February and March and had been bred again. This is what the cooperator supplied.

3. How many of each type of livestock graze on your farm?

   The sixteen cows had 17 calves at foot, sired by a Simmental bull. There was one set of twins and one calf born prematurely. Two yearling Charolais heifers joined the herd in June for a total of 35 head.

4. Please describe your grazing land.

   The grazing land includes 30 acres of old meadow, 5 acres of new seeding, 10 acres of old farmland recently bulldozed and 10 acres of sweet corn residue stripped bare of cobs by raccoons and crows. The soil is mostly rolling sandy loam and some clay loam.

   The perimeter fences are 3 wire high tensile electric, divided internally with two strand polywire into ten paddocks averaging 4 acres each, plus the corn land.

5. Describe your targets for stocking rate, stocking intensity, number of days per paddock, and number of days of grazing per season. Include number of pounds of animal/acre if you consider it.

   When this pasture project began in 1989, we set conventional goals of <u>high liveweight gains per acre</u>. With the difficulty of finding a uniform lot of yearling steers or heifers every spring and with the relative abundance of cheap pasture land in this area, it seemed to make sense to back off on stocking rate and to focus instead on cows with calves at foot, aiming at <u>high individual calf gains</u>.

We reasoned that if we were able to keep the dam very well fed and milking right through the season her calf just had to put on excellent live weight gains. This should translate into higher returns on investment for both the owner of the cattle and the owner of the pasture. It seems to work.

Calves were weighed May 20 as they left the Bogart farm and on October 25 when they went home (157 days). The cows and yearlings were not weighed.

6. What levels of production do you expect per acre for a whole grazing season, both in tonnes of forage/acre and pounds of animal gain or amount of milk produced per acre?

Here is a summary of the results:

No. of calves	17
Days on pasture	157
Total weight May 20	3680 lbs
Total weight Oct 25	11630 lbs
Total gain 157 days	7937 lbs
Avg. weight May 20	216 lbs
Avg. weight Oct 25	684 lbs
Avg. gain 157 days	467 lbs
Avg. gain/day	2.97 lbs

The top two calves weighed 880 and 815 lbs, each having gained 520 lbs on pasture or 3.31 lbs/day. The twins together gained 770 lbs. The premature calf, only 42 lbs at birth, gained 350 lbs on pasture.

Excluding the sweet corn residue, the stocking rate was just under one animal per acre and the stocking intensity was 8.75 head/acre.

The herd cycled over nine of the ten paddocks three times in the 157 day pasture season. The aim was for 4 to 7 days on each paddock with a 30 to 45 day rest in between. With plenty of rainfall, it was a good year for pasture. The internal fences were removed in mid-September, giving open access to the sweet corn residue. The cattle divided their time equally between the corn field and the pasture. We could not estimate how much of the gains were due to the corn residue.

7. What species and varieties of grasses, legumes and other forages do you prefer in your current grazing system?

Seven of the ten paddocks are old meadow with varying stands of bluegrass, quackgrass, timothy, brome, trefoil and white clover. In the past two years, with advice from our provincial pasture specialist, Susan Robinson, we have experimented with top seeding different legume and grass species and we are seeing encouraging results. Time will tell.

One paddock, formerly in corn, seeded in 1991 to a pasture mixture which included orchard grass, tall fescue, ladino and trefoil is looking good. Another paddock was direct seeded to orchard grass and ladino in 1993 and grazed for six days in the fall.

8. Describe your watering system for grazing animals.

The cattle are fenced off from running water and have access to a stock watering tank in the central holding area, fed by plastic pipe from the house system. When we hear the pump running, we know the cattle are up for water, giving us a chance to take five minutes and close the gate to one pasture and open the next.

9. How long has it been since your pastures were ploughed?

The old meadow has not been ploughed for 20 years. See Item 4 above for ages of other paddocks.

10. Describe your pasture fertility program.

In total, 71 bags of 6-24-24 fertilizer went on these 30 acres, a ratio intended to favour the legumes. Six bags of 34-0-0 went on one acre of brome grass with a rather patchy response. Our pasture fertilizer bill was $520. If we were to decide to increase carrying capacity, we would budget $20 to $30 per head for fertilizer.

11. How long have you been using your current grazing management practices and what changes, if any, would you like to make in the future?

As we approach our sixth year, we find the pasture work very satisfying. We are convinced that rotational grazing and the careful use of fertilizers are key management practices.

Grazing Systems for Beef, Sheep and Dairy - Panel Discussion

Sandra Smyth
WILLOW FARM, R.R. #2
Mattawa, Ontario P0H 1V0
(705) 744-2230

1. What types of livestock graze on your farm?

   Sheep.

2. Which breeds of livestock do you use and why?

   a) Registered Polled Dorset - docile, year-round lambing, good milking and good mothering.
   b) Grade Dorset x Finnish Landrace - above plus improved prolificacy.
   c) Grade Dorset x coloured Corriedale - above plus improved fleeces for craft trade and market lambs.
   d) commercial crossbreds, including Southdown, Suffolk and Dorset crosses.
   e) One Rideau Arcott ram purchased for grade flock in 93.

3. How many of each type of livestock graze on your farm?

   Mother flock of about 95 ewes plus attendant lambs depending on production sequence.

4. Please describe your grazing land.

   Home farm of 47 acres includes 4 acres of pine\spruce forest, 5 acres for buildings and yard, plus 18 acres of unimproved bush, swamp and coyotes.

   Twenty acres of improved pasture is broken into 17 paddocks of varying sizes via permanent electric fencing within page wire perimeters. We augment these with temporary electric fencing (flexinet) and graze roadsides, parts of paddocks, portions of farmyard, etc. The unimproved portions of the farm allow for a further 3 foraging areas.

   Growing medium is sandy loam to swampy, with bedrock uncomfortably close in some areas.

5. Describe your targets for stocking rate, stocking intensity, number of days per paddock, and number of days of grazing per season. Include number of pounds of animal/acre if you consider it.

   Stocking rate is difficult to assess as we have groups of animals at various stages of production throughout the season, i.e. gestating, lactating, dry, growing, etc.

We split the farm on an east/west bias and juggle the 2 larger groups through their respective paddocks as required. Lesser groups are confined to the barn or to certain areas and supplemented if necessary.

The sheep are put into a paddock when the forage is about 6 to 8 inches high and removed when it is no less than 2.5 inches high. We also keep an eye on which species are left. Thus the number of days that each paddock is grazed varies from field to field. We do not try to keep stocking intensity constant by varying the number of animals per field.

6. What levels of production do you expect per acre for a whole grazing season, both in tonnes of forage/acre and pounds of animal gain or amount of milk produced per acre?

The maximum, of course.

About 120 lambs are marketed per year. If average lamb weights are 90 lbs, about 10,800 lbs of lamb are produced per year. Only part of this is due to pasture. About 300 round bales and 700 to 1200 square bales of hay are harvested from another farm and fed to the sheep.

7. What species and varieties of grasses, legumes and other forages do you prefer in your current grazing system?

We follow recommendations from Sue Robinson, mostly.

Spring: Orchard grass/white clover (9lb/3lb) for rapid early pasture growth and quick regrowth, as well as palatability. The sheep love it!

Native pasture - those unimproved foraging areas of twitch grass don't cost a lot to maintain.

Meadow foxtail - attempted as an August overseed on old pasture in 1986 and was not successful but will try it again this spring.

Summer: Tall fescue/brome/trefoil (5/3/7lb) in six paddocks to the east. The sheep favour paddocks 2,4 and 5. Why?

Fall: Fodder rape - extends the season. Can use it to fatten or to flush. Rape is very popular with the sheep and is invaluable to us in our pasture renovation scheme.

We are anxiously awaiting NLCAT results and recommendations on pasture mixtures.

8. Describe your watering system for grazing animals.

The sheep always have access to their pens with water bowls and mineral feeders. This is complicated sometimes (for fencing) but I believe it saves on predator losses.

The pond and creek on the SW corner of the farm ("the slough") serve whatever sheep are allowed at any given time.

9. How long has it been since your pastures were ploughed?

Ploughed?! We're still in the process of clearing!

In 1974 when I purchased this property there were about 5 acres still clear, the rest of the old fields were grown up in trees. Hay had been hauled off and nothing put back for a long time.

Most of our 'specifically pasture' improvements have been instituted since 1986 when we first asked Sue Robinson to make recommendations. We seem to get very enthusiastic every 2 years and mildly maintain annually. Recent history suggests about 2 paddocks under renovation each year.

10. Describe your pasture fertility program.

Under subsidization we tested often to check fertility. Now we work from soil samples taken only on those paddocks we want to renovate right now.

We ordinarily store our manure in piles for a year to save time and fuel, kill bacteria, etc. We never have enough to cover the farm so it is saved for those 2 or 3 pastures or crop fields we want to renovate or rejuvenate.

Some other pastures get part doses of commercial NPK in spring and a bit of N post-grazing the first time. It depends on time and 'affordability'.

Stove ashes are spread directly on paddocks or used to topdress manure-spreader contents.

Lime - Since we are downwind of a significant acid source in Sudbury, our lime requirements are high. Soil test results indicate the need for 3 to 4 tonnes of lime/ha on many of our fields. We apply some lime but feel we sometimes cannot afford the recommended level. Sheep seem to prefer pastures which have been recently limed.

11. How long have you been using your current grazing management practices and what changes, if any, would you like to make in the future?

We became seriously interested in pasture management in 1986 when we discovered we had Sue Robinson in the North Bay OMAF office to draw on and that pastures were indeed a viable crop. We also became dealers for an electric fence company that year.

We would readily adopt pasture mixes proven viable for our specific geographical area and our specific livestock in our farming program. We would appreciate further research into more cost-effective methods of producing a commodity that has great upward potential in Ontario agriculture. Hooray the shepherds!

Another consideration is to incorporate some beef cattle into the farm to: (a) aid in predator deterrence and; (b) help in forage management, since they eat plant species that sheep won't.

Grazing Systems for Beef, Sheep and Dairy - Panel Discussion

Klaus and Ursula Wand
R.R. #4
Powassan, Ontario P0H 1Z0
(705) 724-2314

1. What types of livestock graze on your farm?

   Dairy cows and heifers.
   Beef cows and heifers.

2. Which breeds of livestock do you use and why?

   Holstein dairy cows for highest milk production potential.
   Simmental fullblood beef cows for personal preference.

3. How many of each type of livestock graze on your farm?

   35 Holstein cows
   30 Holstein heifers and calves
    5 Simmental cows with calves
    4 Simmental heifers

   74 head

4. Please describe your grazing land.

   A total of 52 ha (128.5 ac) permanent grassland, flat and sloped, divided as follows:

   - 9.75 ha (24.1 ac) in 7 paddocks from 1.07 ha to 2.07 ha (2.6 - 5.1 ac); mainly used as pasture for milking cows. Temporary electric fence and tumblewheels.
   - 8.25 ha (20.4 ac) divided into 3 sections for heifers, beef animals and dry cows. If possible, one section is used for hay. Temporary electric fence.
   - 34 ha (84 ac) used for one cut of hay, then integrated into rotational grazing with temporary electric fence.

5. Describe your targets for stocking rate, stocking intensity, number of days per paddock, and number of days of grazing per season. Include number of pounds of animal/acre if you consider it.

   - 7 paddocks to provide enough basic feed for about 30 cows.
   - 3 to 4 days on a paddock, totalling 9 to 12 days of grazing per season.
   - tumble wheels are used within paddocks and moved 2 times daily.
   - when regrowth slows down, aftergrass in hayfields is brought into rotation.

When 30 cows are grazing the 7 paddocks, their stocking **intensity** varies between 5.9 and 11.5 cows/acre. The whole season stocking rate is about 0.6 animals/acre or 1.6 acres/animal, plus a cut of hay.

Grazing normally starts about May 20 but in one wet year it started June 10. Full days of grazing end in mid October and animals will graze part days until mid November. May 20 to October 20 would be 153 days.

6. What levels of production do you expect per acre for a whole grazing season, both in tonnes of forage/acre and pounds of animal gain or amount of milk produced per acre?

Holsteins produce about 25 litres of milk/cow/day. (Some grain is fed in the barn at milking, depending on production.)

We aim to grow good-sized heifers to reach 500 - 550 kg (1100 - 1210 lb) at calving age.

Beef calves are expected to reach 320 kg (700 lb) at 200 days.

Forage yield on paddocks is 5 to 8 tonnes/ha.

Forage yield on other fields is 4 to 7 tonnes/ha.

7. What species and varieties of grasses, legumes and other forages do you prefer in your current grazing system?

We prefer a combination of creeping and bunch grasses, which are medium high and high growing, with some red and white clover and trefoil. We dislike orchard and reed canary grasses.

8. Describe your watering system for grazing animals.

On 7 paddocks there is a stock tank fed by a water line from the barn. Other fields have a stock tank with a portable pump and gas motor.

Heifers have a watering place at a little creek.

All water-carrying ditches are fenced off with temporary electric fence.

9. What is the age of your pastures?

The youngest pastures are 18 years and the oldest are 25 to 30 years old.

10. Describe your pasture fertility program.

Soils are sampled yearly. P and K are added as 0-0-60 or 0-20-20 in the fall. Nitrogen is added at 60-80 kg/ha as 34-0-0 in a split application. Lime is added according to soil test.

Manure is spread at 40 - 50 tonnes/ha after hay has been taken off and toward the end of the grazing season.

11. How long have you been using your current grazing management practices and what changes, if any, would you like to make in the future?

The rotational grazing system was first used in 1975, our first year on the farm and it further developed over the years. At present no changes are planned. In future, paddock sizes might have to be changed according to herd size, depending on milk quota holdings.

Evaluation of Pasture Mixtures at NLCAT

Jim Johnston and Paul Sharpe
New Liskeard College of Agricultural Technology

OBJECTIVES

A three-year experiment involving intensive rotational grazing with ewes and lambs was initiated at NLCAT in 1993. The trial has three objectives. First, we want to quantify the overall productivity of both forage and livestock on intensively managed sheep pastures in our climatic zone. It seems likely that current levels of output can be increased significantly with careful attention to grazing management.

The second goal is to evaluate the adaptation of each of six pasture mixtures to intensive rotational grazing. The species included in the mixtures have different growth habits and it is reasonable to expect that some will be more suited to this grazing management than others. Identifying more productive and persistent mixtures would be a direct benefit to many producers, since reseeding is an expensive process which should normally be undertaken as infrequently as possible. On the other hand, producers who utilize short duration pastures as part of a regular crop rotation could benefit from high-yielding but less persistent pasture mixtures.

The third objective is to compare the yield, composition, and quality of each mixture under grazing to similar mixtures under mechanical clipping (simulated grazing). It is not difficult to imagine that plants which are exposed to animal's hooves, mouths, and manure might respond differently than similar plants exposed to a mechanical harvester. If this proves to be the case, we would be wise to subject potential pasture species and mixtures to actual grazing conditions instead of evaluating them only by mechanical clipping.

In this report, we will discuss the adaptation of the six pasture mixtures during the first year of grazing, with specific reference to forage yield and species composition. We will also describe the overall performance of the ewes and lambs on the trial.

TREATMENTS

Three legumes and two grasses are being tested in binary mixtures. The legumes include conventional alfalfa (OAC Minto), spreading alfalfa (Spredor II), and white clover (Sonja). The two grasses being tested are reed canarygrass (Palaton) and orchardgrass (Kay). Among the legumes being examined, conventional alfalfa does not spread vegetatively, spreading alfalfa has the potential to spread vegetatively, and white clover spreads aggressively by stolons (horizontal stems) which creep along the

surface of the ground.

The two grasses being evaluated also present a contrast in growth habit. Orchardgrass is a bunch-type grass which cannot spread vegetatively while reed canarygrass spreads rapidly by thick underground rhizomes. In addition, orchardgrass is generally considered to be easily established while reed canarygrass (especially the low alkaloid type) is considered slow to establish.

MANAGEMENT

Each mixture was sown on two 0.265 ha (0.66 acre) fields, giving 12 fields in total. Each field was divided into 8 paddocks which were then grazed rotationally by a mini-flock of ewes and their lambs. Most ewes were crossbred, consisting of varying percentages of Dorset, Suffolk, and Romanov. Lambs were sired by either Dorset or Suffolk rams. Lambs were between 5 and 15 days of age when the trial started.

Each field was stocked on a put-and-take basis, meaning that the number of animals was adjusted to suit the growth of the pasture. From the outset of the trial, our goal was to stock at a level which would allow from 2 to 6 days grazing in each paddock and provide rest periods of 20 to 45 days between grazing events. The target residual height (pasture height when animals were moved) was 4 to 6 cm.

DATA COLLECTION

Data collection covered all aspects of the pasture system. The date and time of moving each flock was recorded as was the pasture height before and after grazing had occurred. The yield (dry matter) and quality (CP, ADF, NDF, Ca, P) of the pasture herbage was determined before and after grazing on four of the eight paddocks in each field. Species composition was determined on the same paddocks, but only in the pre-grazing samples. Lamb and ewe weights were recorded at the end of each grazing rotation and the ewes were condition scored at the same time. Recording weights throughout the year allowed the calculation of average daily gain, total gain per hectare and stocking rate and density for both ewes and lambs.

MIXTURE ADAPTATION

i) Forage Yields

For each mixture, the yields shown in Figures 1 and 2 represent the mean of 8 paddocks (4 paddocks in each of 2 replicates) per rotation. Overall, forage yields were greatest in rotation 1 and generally declined over the course of the grazing season (Figure 1). Based on average pasture heights (data not shown), the sheep were turned out to pasture about 8 to 10 days later than desired (primarily as a result of wet soil conditions). The late start to the grazing season resulted in grasses heading

out during rotation 1, thus increasing yields. This effect was carried over to rotation 2 due to high residual yields following rotation 1 (see discussion below). Ideally, herbage yields should be constant over rotations and fall in the 1500 to 2500 kg/ha range.

In rotations 3 and 4, the OAC Minto mixtures tended to outyield the Spredor II and Sonja mixtures, with no significant differences occurring between the two grass species (Figure 1). Minto alfalfa appeared to recover from grazing more rapidly than the other two legumes. The rest periods prior to the third and fourth grazing rotations averaged 32.5 days for OAC Minto, 30 days for Spredor II, and 31 days for Sonja. Since grazing continued throughout the critical fall harvest period, we anticipate less vigorous regrowth from Minto in the second and third years of grazing.

Overall, post-grazing forage yields were greatest in rotation 1 and tended to decline throughout the year (Figure 2). In rotation 1, the pastures contained headed grasses (see above) which resulted in rejection of herbage due to trampling and poor palatability. This in turn resulted in high post-grazing yields.

Within rotation 1, the orchardgrass mixtures had much greater post-grazing yields than the reed canarygrass mixtures (Figure 2). There were two factors that contributed to this: first, orchardgrass matures earlier than reed canarygrass, thus compounding the problems associated with forcing animals to graze headed grass; secondly, the orchardgrass mixtures had a far higher grass content than did the reed canarygrass mixtures (see discussion below).

Post-grazing yields in rotation 2 followed similar trends to rotation 1 but with lower yields. This reflects the carryover of dead, unpalatable material from rotation 1 to rotation 2. All paddocks were top-clipped following rotation 2 to encourage decomposition of the dead material and promote regrowth of new material. Residual forage yields in rotation 4 were lower than desired. This was also reflected in pasture heights after grazing, which were often around 3 cm instead of the desired 4-6 cm. A lower stocking rate late in the season may be necessary to provide acceptable residual yields while still maintaining adequate rest periods in the rotation.

The total forage yield of each mixture was calculated by summing the pre-grazing yields from each rotation and subtracting the post-grazing yields from rotations 1, 2 and 3. Absolute yields were similar to those obtained from identical mixtures under mechanical clipping (5 cuts/year), but somewhat less than pure stands or simple mixtures cut twice per year.

There was no significant difference in total yield among the Minto mixtures, Spredor-Palaton, and Sonja-Kay (Figure 3). With Spredor

alfalfa, Palaton mixtures outyielded Kay mixtures, while the opposite was true with Sonja white clover. The relatively low yield of the Sonja-Palaton mixture is related to its low grass content (see discussion below). Although livestock data are not completely analyzed, it appears that animal production from the Sonja-Palaton mixture was at least equal to that of any other mixture, suggesting that total seasonal yield may not be a good indicator of animal productivity under grazing.

ii) Species Composition

The grass species used had a large impact on the composition of the mixtures (Figure 4). Palaton mixtures consistently had a higher legume content than did the Kay mixtures. Legume content also tended to increase over time in Palaton mixtures, while in remained relatively constant (Minto and Spredor) or declined (Sonja) in Kay mixtures.

The high legume content in the Palaton mixtures supports other observations regarding the slow establishment of reed canarygrass. In hayfields, reed canarygrass starts slow, but usually thickens with time and forms the majority of the stand by the third or fourth production year. Our first-year data indicates that the reed canarygrass became less competitive during the season (Figure 4) and was on the verge of being completely eliminated from some of the paddocks (especially with Minto or Sonja). Data from the next two grazing seasons will be needed to fully assess the ability of Palaton to withstand intensive rotational grazing.

Legumes rarely formed more than 40% of the dry matter of orchardgrass mixtures (Figure 4). These mixtures were relatively bloat-safe even in the first production year, whereas the Palaton mixtures would normally present a bloat risk for grazing animals. Over many years, the sheep flock at NLCAT seems to have developed a tolerance to bloat-causing legumes. Only one animal died from bloat on this trial, and in that case the ewe had broken out of her paddock and gorged on fresh alfalfa. We followed normal procedures for grazing legumes (ie: move when dew has dried, don't let the sheep get too hungry before moving), but did not use any bloat preventing supplements.

The effect of legume species on legume content of the mixtures varied with the species of grass used (Figure 4). In Kay mixtures, Minto alfalfa tended to provide a higher legume content than Spredor or Sonja. In particular, large amounts of headed orchardgrass in rotation 1 suppressed Sonja, thus reducing its contribution to the mixture. Relatively close grazing allows light to reach clover stolons, stimulating their development. With proper early season management, the white clover content of the Sonja-Kay mixture may increase in future years.

The amount of dead tissue in the mixtures was very high in rotation 2 (Figure 5). This corresponds to the residual herbage

left following rotation 1 (Figure 2) and was greater in the orchardgrass mixtures than in the reed canarygrass mixtures. In the Sonja-Kay mixture, large amounts of dead material were still present in rotation 3, further explaining the constant decline in clover content shown in Figure 4.

Chemical analysis of forage quality has not yet been completed. To date, yield data has shown some variation in yield among mixtures both within rotations and seasonally. Mixture composition was dramatically affected by the companion grass used in the mixture. The skewed yield distribution over the season, excess post-grazing yields in rotation 1 and the dramatic increase in dead material in rotation 2 have demonstrated the problems associated with improper early season grazing management. It is clear that the first grazing rotation must be timed to avoid large accumulations of mature grasses.

OVERALL PASTURE AND ANIMAL PERFORMANCE

i) Stocking Rates

A total of 84 ewes and 141 lambs started the trial in early June. Animals were removed as necessary to maintain a balance between pasture growth and animal requirements. Stocking rates for ewes alone dropped steadily throughout the trial, while stocking rates for lambs increased initially and then remained relatively constant (Figure 6).

Total stocking rates peaked at about 2800 kg liveweight/ha at the end of rotation 1 and were reduced to about 1900 kg/ha at the end of the season (Figure 6). It is important to note that although 43% of the animals were removed during the trial, the total stocking rate (in kg/ha) only declined by about 25%. This was because the lambs gained weight during the trial, thus buffering the impact of animal removal on stocking rate. If one wished to halve the stocking rate of growing animals (in terms of kg/ha), well over half of the total number would half to be removed from the pasture (or the area increased by more than 50%).

ii) Average Daily Gain

Lamb average daily gain declined over the season, ranging from 340 g/head/day in rotation 1 to 151 g/head/day in rotation 4 (Figure 7). Gains were relatively stable in rotations 2 and 3 at 240 and 220 g/head/day, respectively. Considering only the 82 full-season lambs, overall gains were 240 g/head/day (0.53 lb/head/day).

On average, the full season lambs gained 29 kg while on pasture with the ewes and weighed 37 kg at the end of the trial (data not shown). It appears that selling market lambs directly off pasture at 35 to 40 kg would be possible with this pasture system. Also, improvements in pasture management (discussed above) likely leave room for further increases in animal performance.

The ewes lost a significant amount of weight during the trial (Figure 7). Ewe weight change ranged from a loss of 194 g/head/day during rotation 2 to a gain of 15 g/head/day during rotation 3. It was anticipated that the ewes would lose weight during early lactation (rotations 1 and 2), but also that they would regain some or all of the lost weight later in the season. This happened to some degree in rotation 3, but failed to occur in rotation 4.

The ewes and lambs remained together in rotations 3 and 4, increasing the competition for forage among animals and increasing stress on the ewes due to the lambs suckling. In addition, the weight loss in rotations 1 and 2 was likely enhanced due to the stemmy nature of the grass (poor palatability and lower forage quality). On average, the 44 full-season ewes lost 100 g/head/day (Figure 7).

iii) Gain per Hectare

The total liveweight gain of lambs on the trial amounted to 1037 kg/ha (Figure 8). This included both short-keep (removed during the trial) and full- season lambs. Similarly, considering all ewes on the trial, a weight loss of 301 kg/ha was recorded.

It is clear that the lamb gain cannot be completely attributed to the pasture; some lamb gain must have resulted from the ewes weight loss. Therefore, the difference between lamb gain and ewe loss can be considered net liveweight gain from the pasture. Using this criteria, the net gain from the pasture was 736 kg liveweight/ha (Figure 8).

While the net gain recorded is relatively high, we certainly have room for improvements. The excessive weight loss of the ewes is of concern, since we would like to "rebuild" and flush the ewes on cheap pasture rather than expensive grain. Also, the grazing management resulted in inefficient utilization of the forage early in the season. It seems likely that net gain per hectare can be improved both by increasing lamb liveweight gain and by reducing or eliminating the ewes weight loss over the course of the grazing season.

FIGURE 1: **Forage Yield of Six Mixtures Prior to Grazing by Sheep - NLCAT - 1993**

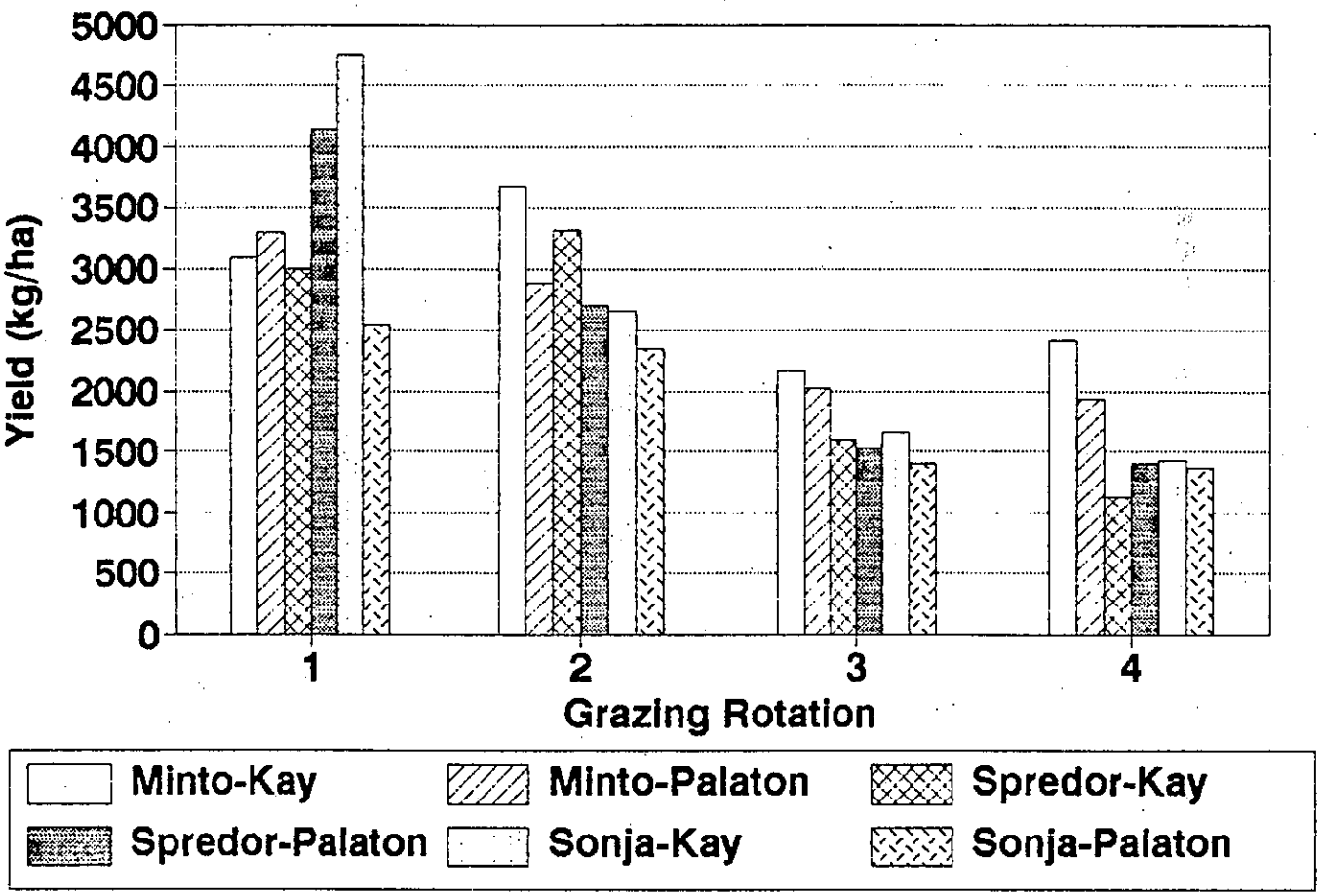


FIGURE 2: Residual Forage Yield of Six Mixtures After Grazing by Sheep - NLCAT - 1993

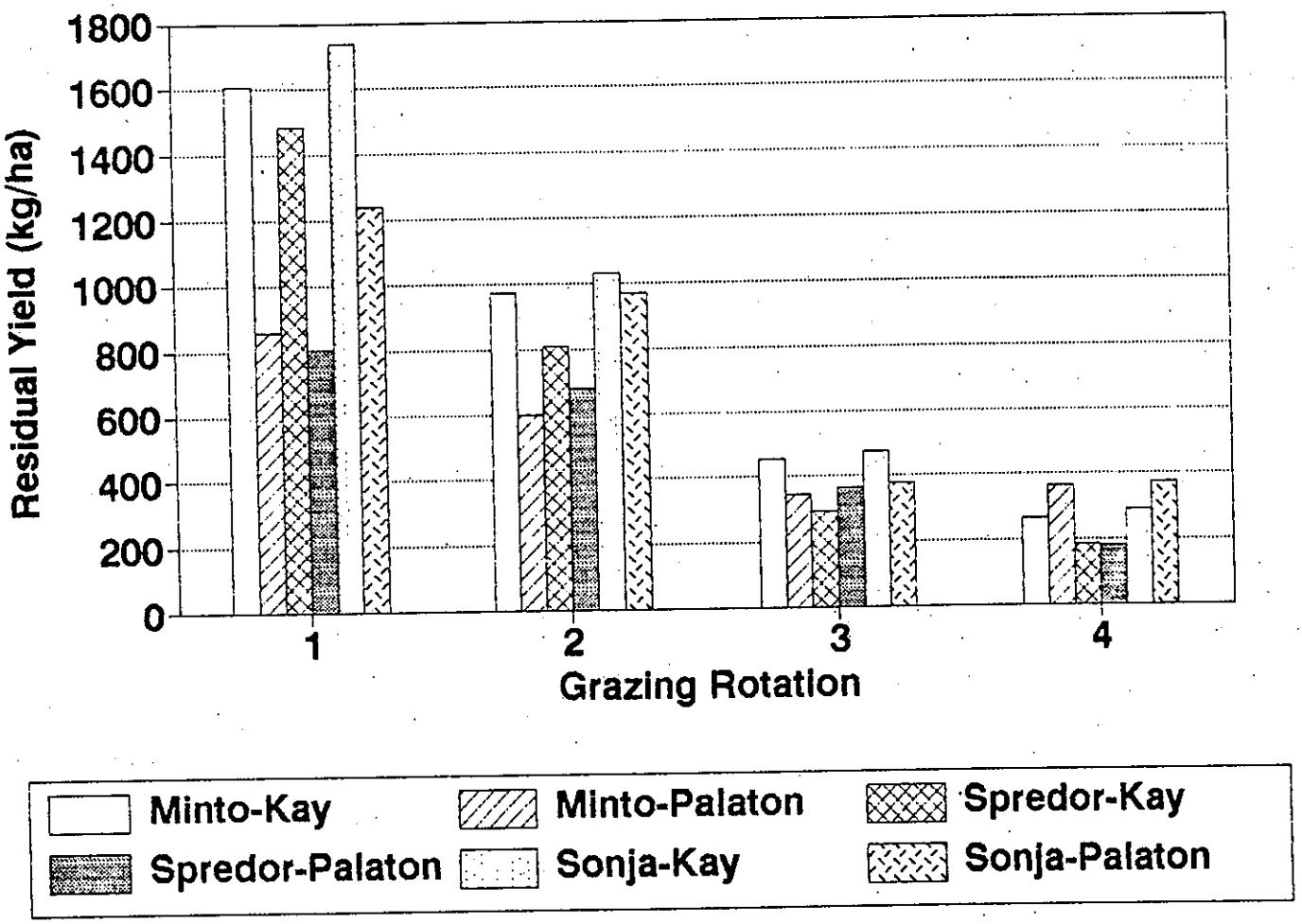
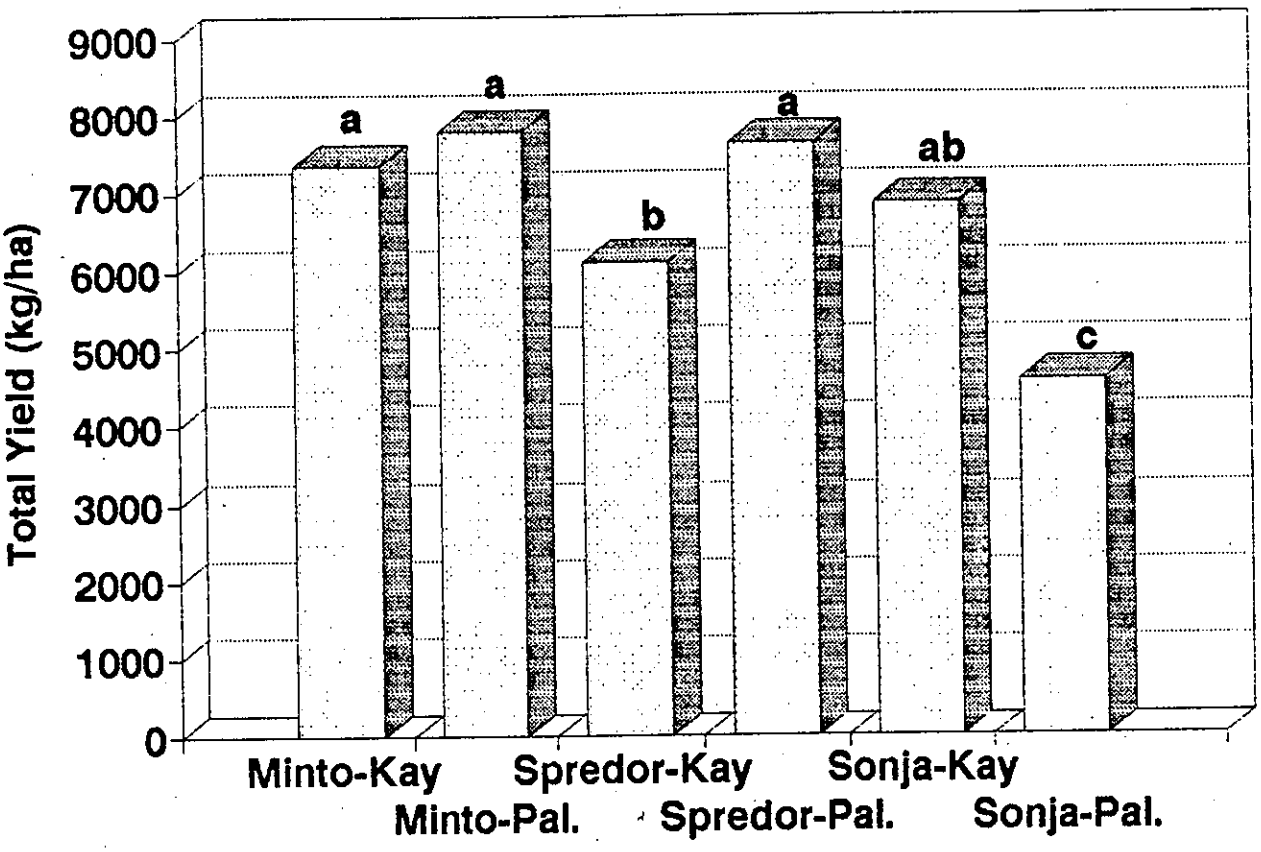


FIGURE 3: **Total Forage Yield of Six Mixtures Under Grazing by Sheep - NLCAT - 1993**



Treatment means with the same letter are not significantly different at the 5% level of probability

FIGURE 4: Legume Content of Six Mixtures Before Rotational Grazing by Sheep-NLCAT-1993

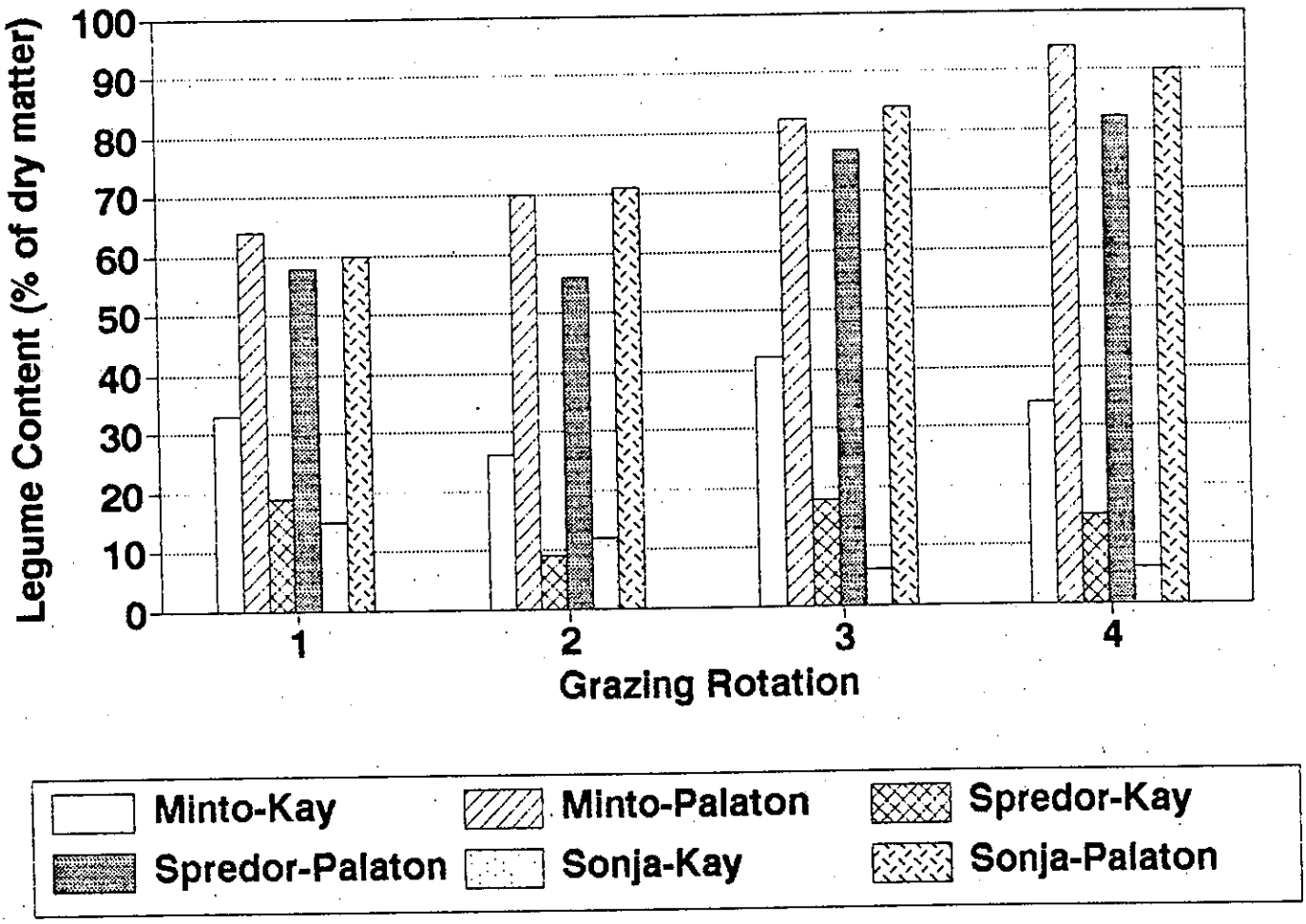


FIGURE 5: Dead Tissue Content of Six Mixtures Before Grazing by Sheep-NLCAT-1993

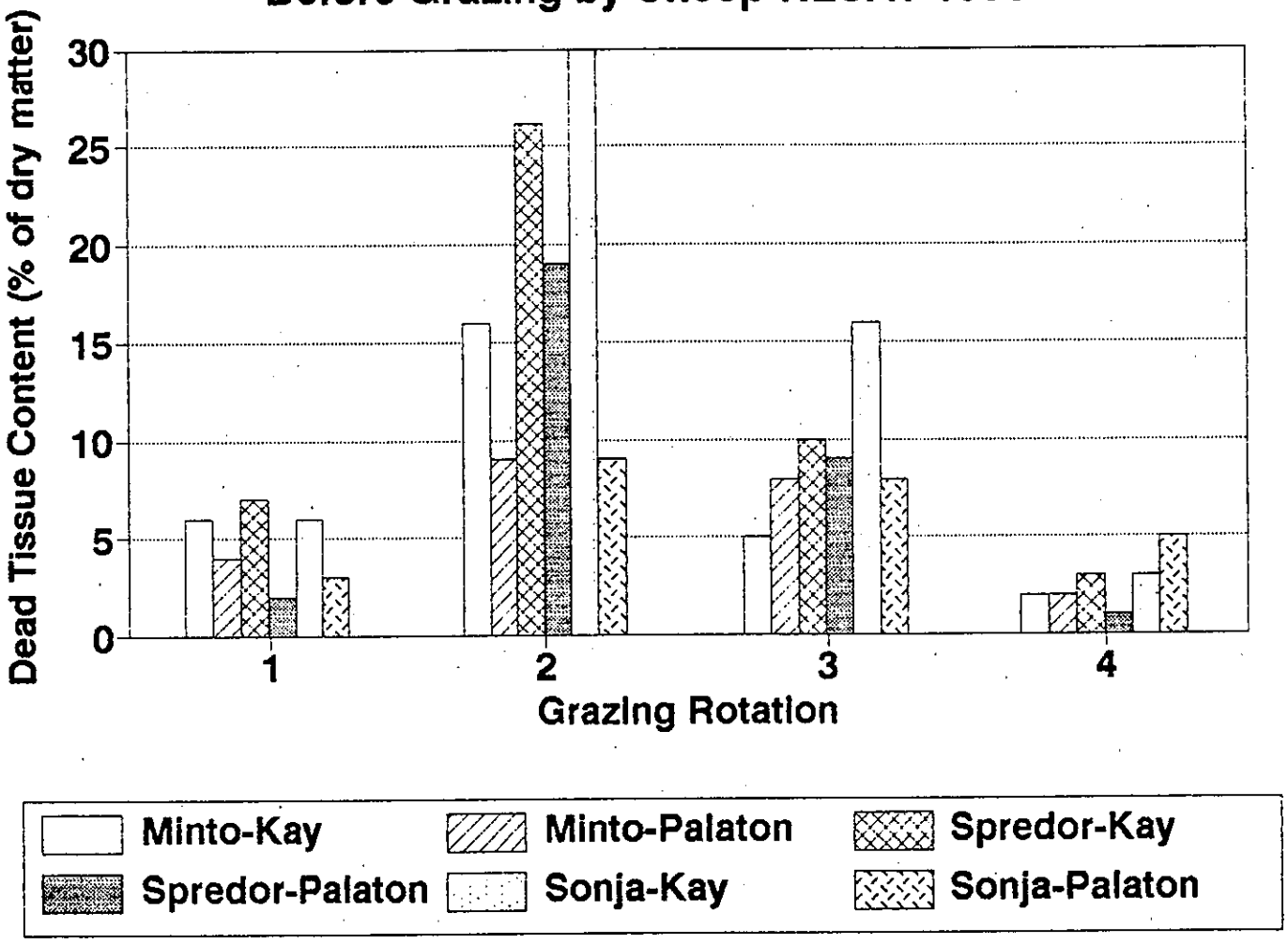


FIGURE 6: Ewe, Lamb, and Total Stocking Rates on Rotationally Grazed Pasture - 1993

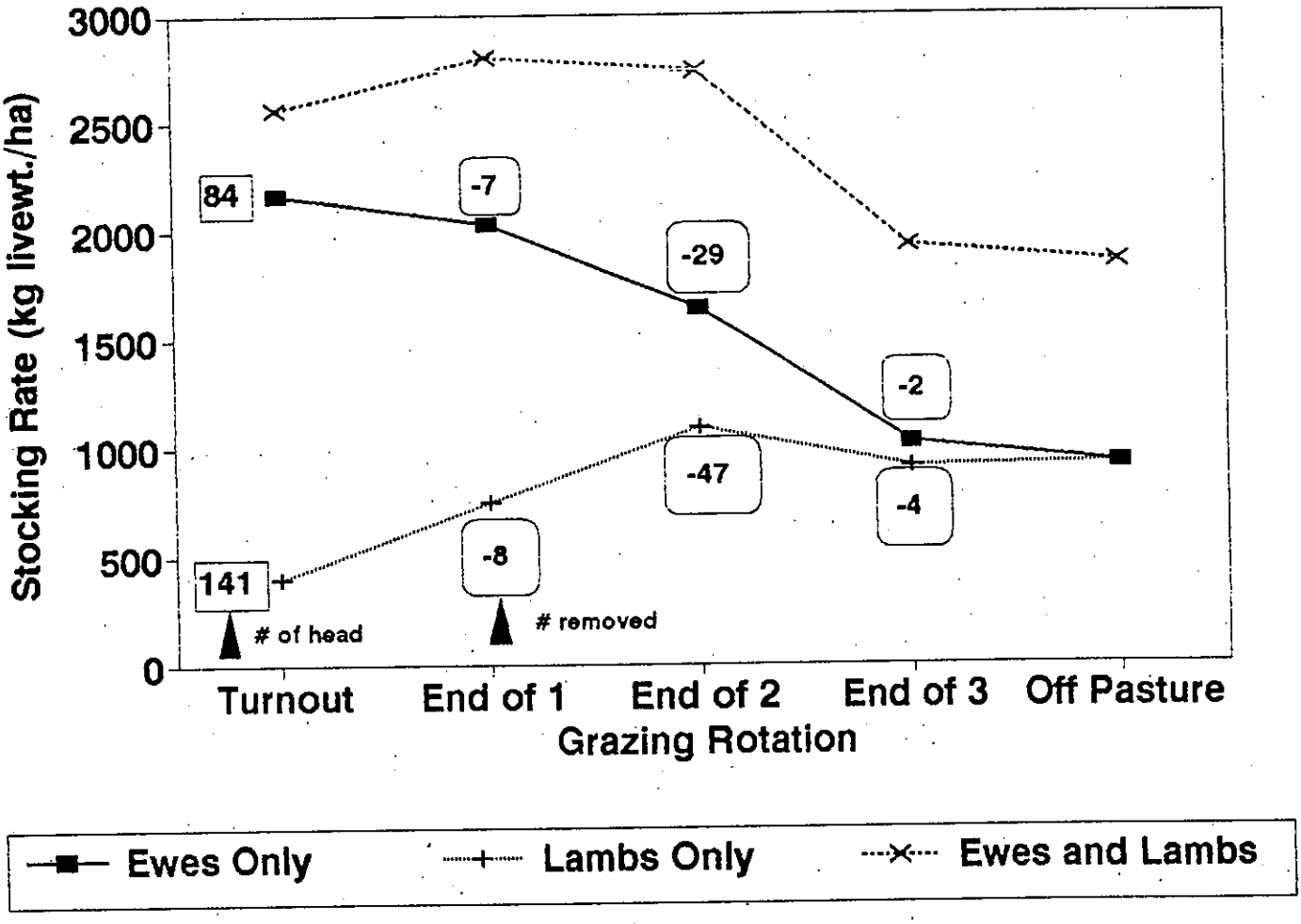


FIGURE 7: **Ewe and Lamb Performance on Rotational Pasture - Average of Six Mixtures**

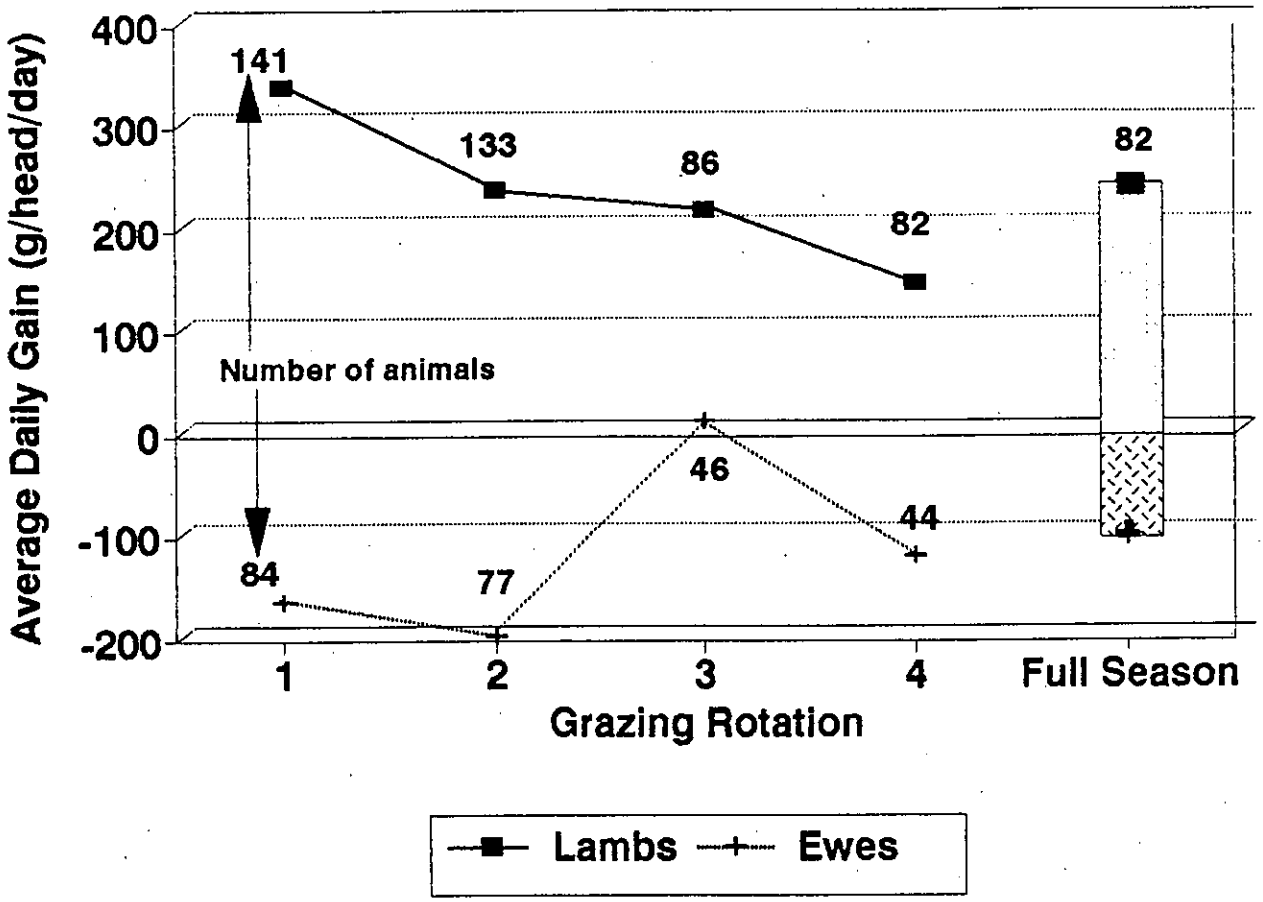
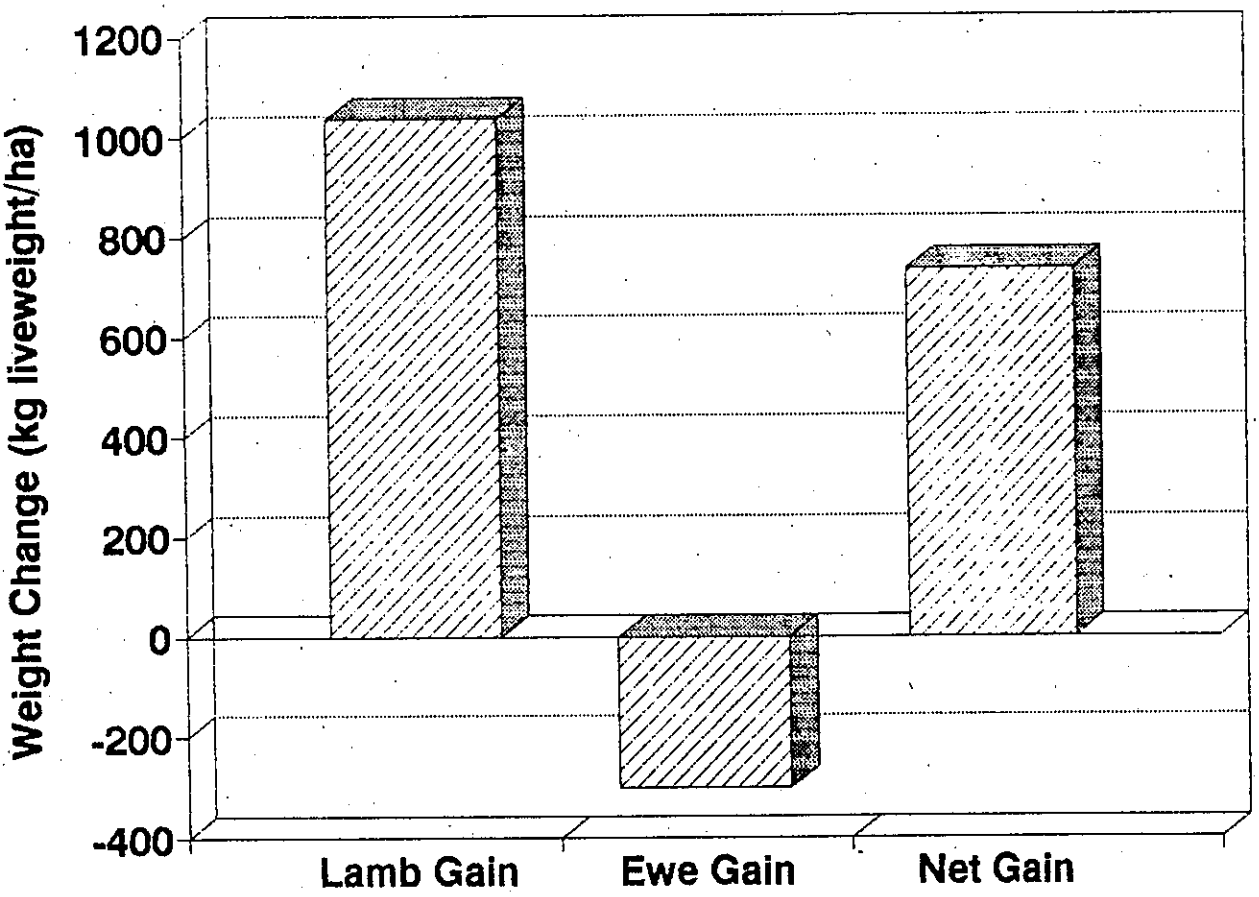


FIGURE 8: **Liveweight Gain per Hectare of Ewes and Lambs - Average of Six Mixtures ***



* Seasonal average of short-keep and full-season stock

Calving - The Case for Nature Versus Technology

Roy Berg and Mick Price
Dept. of Animal Science, University of Alberta

A visitor from outer space reading the February calving issue of CATTLEMEN for the past few years could be forgiven for thinking that pregnancy is a disease that breaks out seasonally in our cow herds and can only be cured by an invasive procedure called "calving"! Technological advancement is an unquestionable boon to all industries, including beef production, but used indiscriminately, it has the capacity to cause far more problems than it cures.

On our modern, technology-oriented ranches, it's not unusual to find the inappropriate application of technology. A poorly planned cross-breeding program, for example, that leads to the unexpected problem of difficult calvings. Instead of going back and correcting the primary source of the problem, our reaction has become to apply a second generation of technology (an improved calf puller) to "solve" the problem; and when that leads to other problems (weak, listless calves), we go to a third generation of technology (calf heaters, medication, calf movers). Pretty soon, we've got technology piled on top of technology trying to solve problems that we wouldn't have if we had carefully examined the technology we were using in the first place.

Calving is not a new procedure. It is worth reflecting that every cow you have is the product of an unbroken line of successful calvings, going back countless generations, with every calf surviving to adulthood. With a pedigree like that, maybe we should give the cow more credit for being able to calve unassisted than February issues of CATTLEMEN would seem to suggest.

What does a cow need to be able to get the job done? If we look to her wild cousins (moose, elk, and deer) the first thing to note is that they don't calve in February, or in close proximity to other calvers. Instead, they calve in early summer, and go off alone to some carefully chosen, protected area where they give birth and then stay in seclusion with their new-born for a day or so to bond. Many will then choose to hide their calf, coming back several times a day to nurse.

That presumably is what our cow would also do, given the opportunity. Yet most of our calving management is contrary to that natural ideal: we crowd our calving cows together, give them no opportunity for seclusion, and descend on them to assist the moment they look like they are starting to calve. We then handle

Reprinted with permission from CATTLEMEN: February 1992

them and their calf while we carry out our management procedures, and usually move them off to some area that we've chosen where they are supposed to bond with and nurse their calf if they're not too dazed by the management.

Advanced management and technology are necessary if the cattle business is to be viable, but it behooves us to recognize that every time we move away from the natural ideal, we are looking at potential trouble and a careful benefit/cost analysis is in order.

Most of the letters and articles in the February calving issues of CATTLEMEN for 1989, 1990, and 1991 detailed intensive operations which have been developed to provide artificial clean, healthy maternity environments. Only 3 articles outlined successful extensive calving programs. Fundamental to all successful programs was adequate winter nutrition and management of the pregnant cows and heifers, which assumes that they are healthy and strong as the calving season approaches.

The common features of the successful extensive systems: first-calvers and cows were separated over winter and during calving; the calving season was either early summer or fall; extensive, clean pasture areas were provided for calving; and minimum checking and intervention at calving was the rule.

Almost all the intensive systems practised winter calving (from January to March). It was difficult to find a common core of practices for this group. Individuals had experimented and had developed procedures that worked for them.

Perhaps the most common practices were preventive calf scours vaccination programs; attempts to provide a clean, dry, well-bedded calving environment; 24-hour observation during the calving season; a general expectation of calving troubles and an apparent readiness to assist with calving and post-calving adjustment of cow and calf; and provision of various facilities such as a warm calving barn and auxiliary shelters.

Many of the intensive calvers were purebred breeders who no doubt felt that the costs involved in saving extra calves and keeping them healthy was worthwhile. Except for the cost of vaccine, and in one case 600 sterile needles for an 85-cow herd, no cost figures were presented.

Many helpful hints were provided by the intensive group based on their experience, including the following: have an observation area including a bed to facilitate 24-hour observation; use beepers and remote TV for the same purpose; assist with calving; know when to call a vet; feed the calf colostrum; know when to milk the cow and bottle-feed the calf; know what vitamins and minerals to give and how; move the calf and cow to a warm dry area after calving (several innovate calf transport devices were described); warm cold calves (several methods were described); know how to start calves

breathing (use a respirator); know how to foster calves; know how and when to tag, dehorn, and castrate calves; know how to keep the calving area clean and healthy (for example, remove old manure packs, disinfect and renew bedding); and know how to treat scouring calves and what to use.

Many devices and supplies were described by the intensive group: scours prevention vaccine, frozen colostrum, calf respirator, calf hutches, calf pullers, disinfectants, lime, creosote, calving barns, calf hutches, calving beeper, remote TV monitor, various calf-warming devices, a leather carpenter belt or other apron suitable for holding all needed devices and materials (syringes, needles, vitamins, minerals, iodine, ear tags, pliers, and obstetrical hardware), calf underwear, calf car warmer, and a bra for pendulously uddered cows.

Differences between "extensive" and "intensive" systems are apparent. The former take advantage of natural, animal-friendly environments requiring a low input of capital and labor. The latter attempt to provide an acceptable, artificial calving environment that has high labour and capital inputs. In both systems, success is measured by the percentage of calves saved with no apparent consideration of costs.

Research surveys have shown that pre-calving to weaning losses range from 5% to 10%, with two-thirds of the losses occurring in the first 3 days, and two-thirds of those due to dystocia (difficult delivery). The highest losses occur with 2-year old heifers, followed by second calvers. Cows 4 years of age and older have about half the losses of the 3-year-olds and one-third the losses of 2-year-olds. Under normal circumstances, major losses are caused by dystocia, the rest by diseases such as calf scours and pneumonia and by genetic disorders.

Genetic disorders such as crooked calf, hydrocephalis, and hairlessness are minor, though sometimes very visible and more common in purebred herds that practice line breeding or inbreeding. Genetic disorders are very infrequent in well designed crossbreeding programs. The most significant calf losses, therefore, arise from dystocia or neonatal disease, and thus prevention and control should attack these separately.

Much is known about dystocia. It is a readily preventable problem. Trouble arises when the size of the calf becomes incompatible with the size of the cow. The problem is largely manmade, and has increased as a result of indiscriminate use of large bodied "exotic" bulls with large birth weights. Performance testing for growth rate in the traditional breeds has also contributed to the problem. Selection for size and growth rate tends to increase calf birth weights, which soon reach critical levels. The recent show-ring fad emphasizing frame score and scale has great potential to make calving problems ever more serious.

Calving difficulty is firstly a problem of 2-year-old heifers - if left unchecked, it becomes a problem for second calvers and even can permeate the mature cow herd.

A plan to alleviate or eliminate calving difficulty should include culling cows requiring assistance at calving as well as culling their calves, and selecting bulls that are less likely to cause dystocia. Since the problem is primarily one of first-calf heifers, bulls used on first calvers should have light birth weights and be from breeds or strains known to have a low incidence of dystocia.

Some breeds which in the past were considered safe for use on heifers may not be reliable because of changes brought about through introductions of large bulls or through increased size from performance selection, or from use of bulls of large frame size.

Producers knowing their own herds should decide how far they must go to solve their own calving problems. Some have gone as far as using Jersey or Texas Longhorn bulls, which usually eliminates any calving problems.

Purebred breeders can minimize calving problems by selection low birth weight bulls of the same breed for use on heifers. Any bull with excessively large birth weight can cause problems, even on mature cows.

As we said earlier the problem has arisen through successive use of large bulls which also had birth weights, so one should avoid this practice. Cows requiring assistance should be culled with no excuses like "she didn't really need help, I just wanted to get to bed".

Our experience at the University of Alberta Ranch at Kinsella helps justify our conclusion. During 20 years of selecting bulls based on their growth rate to one year of age, the assistance rate at calving with our 2-year-old heifers rose to between 25% and 30%, a common figure in other research herds and performance selected herds. In 1980, we began using the fastest gaining of the light birth weight bulls, less than 70 pounds, on the heifers. We also culled bulls with excessive birth weights, those more than 95 pounds. Calving assistance very quickly dropped to around 5%.

This program did not eliminate all calving problems, and it can have its ups and downs, but for us it significantly reduced the problem.

Disease is the other primary cause of calf losses. In recent years, outbreaks of calf scours (enteritis) have occurred in many herds. Considerable research has been done, particularly by VIDO. Many producers have brought the problem under control through vaccination and improved management - in some cases, by management alone. Treatment procedures have been developed which can bring

calves through the trauma of an outbreak, but of course a program that prevents outbreaks is preferable.

Outbreaks of scours arise when the concentration of infectious organisms (several bacterial and viral organisms are implicated) overcome the immunity of the host. The problem can be attacked by reducing the level of exposure or by increasing the immunity of the potential host calf by providing a favourable environment and by minimizing stressful intervention.

The concentration of infectious organisms builds up where cattle are crowded, particularly in dirty yards. However, clean, dry straw beds have not always been effective in reducing the build-up of the organisms. The most successful way of reducing the infectious load has been to put the calving herd on open, clean, pastures in a favourable season, where a cow can choose her own clean area for calving. Bedding under such conditions seems counterproductive, as it again leads to crowding.

In summary, some producers have been successful in eliminating scours by going extensive. Some have continued to use vaccination as further insurance.

Pneumonia is the most common cause of infectious disease loss in calves when scours is not a problem. Calves that have survived scours may succumb to pneumonia because of their reduced resistance. With pneumonia and other respiratory conditions, the objective again should be to prevent its occurrence rather than to treat after the fact. Management is possibly the key to control of such infectious diseases. Again, a clean, dry, healthful environment is the goal. It is easier to provide a healthful environment if calving takes place in the most friendly season.

Many Alberta producers have moved to winter calving, which certainly tests ingenuity, technology, and capital reserves. Winter calving generally leads to fewer health problems than does early spring calving characterized by cold, wet unpredictable conditions. However, early summer and fall calving provide much healthier environments.

The role of stress in animal health is worthy of discussion. Stress increases susceptibility to disease and can disrupt normal behavioral patterns important to cow/calf bonding. Minimum interference and handling of cow and calf leads to minimum stress.

If the breeding program has been designed to minimize difficult calving, it should be sufficient to supply the cows with a healthy environment and leave them alone. As we have inferred, most of our problems are man-made. Nature has provided the cow with instincts to take her through calving (where she would choose to be alone), to accept her calf and to give it the colostrum and care that it needs to thrive, particularly in the first 12 hours.

Managers who feel that there is a high cost to not assisting

may be surprised at the cost of interference. Generally, a little interference leads to a lot more, and you may soon find that you are trying to substitute your own knowledge and technology for a process nature has designed over countless generations which, if left to its own devices, works quite well. It seems a bit ironic that the trend in humans is toward more natural childbirth, while in beef cattle production, there is a disturbing trend to more intervention during calving.

Because calving seems to be a major concern in the industry, we began a research program in 1990 to assess the potential of a holistic, eco-friendly calving program in which natural, minimal intervention calving is targeted to the most natural season. We have separated part of our herd into 2 groups, one following standard April-May calving. and the second beginning mid-May through June.

Both groups are provided large, natural calving areas. Minimum intervention is practised in both groups. There are no night checks. Calf handling, only for tagging and weighing is done after the cow-calf pairs are eased into new pasture areas. Cow conditions and udder type are scored visually, which does not require handling or disturbance. Inputs of feed, labour, health treatment, etc. are monitored for both groups. The only routine disease prevention is vaccination of the calves for the blackleg complex.

Our 1991 calving included approximately 120 cows per group. It was a particularly friendly season, with little inclement weather for either group, and both groups came through with flying colors. Losses at birth were very minor and losses to weaning (including calves that we assume were rustled) were under 5% in both groups.

We intend to continue the experiment for several years and will report detailed results annually. So far, we are encouraged that there is a good place for low-intervention, natural calving for beef production in western Canada.

We would like to conclude by acknowledging that our approach is not unique. We find many producers, particularly commercial producers, are following a similar philosophy, searching for trouble-free calving by providing environment-friendly, minimal stress conditions. We hope that in future calving issues of CATTLEMEN, the successes, and yes, even the pitfalls, experienced by producers practising eco-friendly calving programs will be reported.

NORTH EASTERN ONTARIO SOIL AND CROP IMPROVEMENT ASSOCIATION

AWARD OF MERIT

The purpose of the Award of Merit is to recognize individuals who have made an exceptional contribution to agriculture in the region of northern Ontario served by the North Eastern Ontario Soil and Crop Improvement Association.

Candidates for selection may be nominated by each district association or by the regional association. No more than one candidate may be nominated by any one association in one year.

The 1994 Award of Merit winners are:

Rhéal Brouillette, nominated by the West Nipissing Soil & Crop Improvement Association.

The Orville Johnston Family, nominated by the Muskoka Soil & Crop Improvement Association.

Walter Roy Smyth, nominated by the Manitoulin Soil & Crop Improvement Association.

Robert Veitch, nominated by the Cochrane South Soil & Crop Improvement Association.

The following are short resumes of this year's NEOSCIA Award of Merit winners.

The West Nipissing Soil and Crop Improvement Association is proud to have nominated **RHÉAL BROUILLETTE** of Verner for a 1994 Award of Merit.

Rhéal is a native of Verner. He was raised on the dairy farm that he purchased in 1967. After his high school, Rhéal went for a two year Agricultural Diploma course in Moffet, Québec, near Ville Marie.

He operated the dairy farm from 1967 to 1991 with his wife Gaëtanne and their children, three boys and one daughter.

Their farm was the first one in Ontario to receive a triangular milking parlour back in 1979. It was also the first farm of Caldwell township to have a municipal drain.

Following the sale of the dairy cows in 1991, Rhéal and Gaëtanne decided to raise dairy heifers, expand in the cash crop side of the enterprise and purchase deers to diversify.

Rhéal was and is still involved in many organizations such as; a founding member of the West Nipissing SCIA, member of the OFA, Nipissing Hay Association and the Caisse Populaire. He has been a director to the NEOSCIA, the Caisse Populaire of Verner (1967-1973), the Nipissing Sudbury Regional Coop (1974-1980) and the West Nipissing - East Sudbury Milk Committee (1980-1987).

Rhéal is presently working on developing a chapter for Northern Ontario to the Ontario Deer Farm Association.

CONGRATULATION RHÉAL ON RECEIVING THE "1994 AWARD OF MERIT".

The Muskoka Soil and Crop Improvement Association is proud to nominate **THE ORVILLE JOHNSTON FAMILY** for the Award of Merit presentation in 1994.

We want to pay tribute to the initiative and leadership of a family who have successfully developed a non-traditional agricultural crop on a non-traditional type of soil in a non-traditional sort of way.

The Johnston Cranberry Marsh, near Bala, in the District of Muskoka is one of only two in Ontario. And they helped in a significant way to set up the second marsh a few miles away for the Iroquois Cranberry Growers. Together, the two marshes produce about 1,000,000 pounds of the 6,000,000 pounds consumed annually in Ontario.

For the past eight years, the colourful harvest in October has been celebrated at the annual Bala Cranberry Festival. Successful beyond belief, with the 15,000 visitors, the Festival has become a major tourism event.

Tragically, the founder of this family operation, Orville Johnston, lost his life in a car accident on the second day of the 1992 Festival. His wife, June was seriously injured in the same accident, but has made a remarkable recovery.

Sons Murray and Blake, along with their spouses Wendy and Kate now carry on the family tradition. Grandson Northrup and granddaughter Jessie are waiting in the wings. Two daughters Diane and Janet, now away from home, were at one time also part of the team.

The story of the development of the Johnston Cranberry Marsh over the past 40 years is one of persistence, hardship, discouragement, and eventually success - a single-minded pursuit of a dream.

The dream first took root in the mind of young Orville Johnston in the 1940s when as a high school student from Ottawa he found summer employment on a small cranberry operation near Mactier, in Muskoka.

He was pursuing the cranberry dream when he enroled in the degree course in agriculture at Macdonald College in Quebec in 1949. There he met and married home economics student, June McArthur.

A marsh, with all the requirements for cranberries was located, near Bala in Muskoka, and was purchased in 1951. It is related that Orville and his father lived in tents while clearing the first acres. Meanwhile, June had summer employment at Elgin House, a few miles away. His ancient motorbike helped togetherness.

Cranberries are an expensive, risky, and unpredictable crop. We can only guess at the problems of selling a dream to raise the development capital. The young couple had whatever support their families could contribute. For a time, Orville's brother, Mel was a partner.

For many years, Orville played the piano and sang with Hugh Clairmont's band. He loved music, but regarded it as a means to an end. For three years he represented Canada Crushed Stone in Muskoka and Parry Sound, but one doubts that selling agricultural limestone to his fellow soil and crop members brought in many dollars. June taught school and made tens of thousands of jars of cranberry products. As the four children grew up, they all helped in one way or another, especially during harvest. It was not an easy road. They never gave up the dream.

It was only after Murray and Blake with their courses at the Ontario Agricultural College behind them, joined the firm that the light at the end of the tunnel grew brighter.

Now, ten years later, with a new cranberry bed in production, and plans for further expansion, the future is promising. They cannot begin to fill the demand. Thousands visit the marsh annually to see and to buy.

In presenting this Award of Merit to the Johnston Family, we are saluting a pioneering family, who by their example, have made and are still making a very great contribution to agriculture in Northern Ontario, and Muskoka District. They have charmed us by their dogged persistence and mutual support; dreams still can come true.

CONGRATULATIONS TO THE ORVILLE JOHNSTON FAMILY ON RECEIVING THE "1994 AWARD OF MERIT."

A 1994 Award of Merit is presented to **WALTER ROY SMYTH**, one of Manitoulin's longest and active member of the Manitoulin Soil and Crop Improvement Association.

Walter originates from the village of Silver Water of Robinson township on Manitoulin Island. He was raised and worked on the family farm until 1940. Walter served in the army for three and a half years and then returned to the farm. In 1946, a partnership was formed with his two brothers to operate the dairy farm, consisting of 450 acres of which 150 was tillable. They introduced the first weed sprayer in the township (1953) and did a lot of custom work for the neighbours. Walter liked to experiment with the Soil and Crop Association, trying different crops. Commercial fertilizer became part of their farm practices in the late 40's. In 1957, he participated in a drainage program and a farm management program with the University of Guelph for ten years.

By 1972, Walter had purchased the shares of his brothers. A year after, he decided that he had enough of milking cows therefore he switched to beef cows.

Walter was involved in many organizations such as; director and member of Manitoulin Cream Producers, president of the Manitoulin Livestock Coop., member of the Manitoulin SCIA, Federation of Agriculture, and Cattlemen's. He also worked for many years at the annual Co-op cattle sale in Little Current. Walter was also involved in his community; clerk and member of the session of United Church, chairman of the local school board, statute labour board, local road board and secretary for the local telephone company for 15 years.

In 1987 at the age of 66, Walter thought it would be appropriate to think about retiring. He started to down size his operation and in 1991 he sold the last of his cattle.

Walter enjoys reading, gardening and woodworking. Walter and his wife Donnabelle have two children, Shirley-Anne and Colleen.

CONGRATULATION WALTER ON RECEIVING THE "1994 AWARD OF MERIT".

The Cochrane South Soil and Crop Improvement Association is pleased to have nominated **"ROBERT VEITCH"** of Matheson for a 1994 Award of Merit.

Bob started farming in 1946, in Thornloe, with beef cattle. In 1952, he decided to move back to the homestead near Matheson.

Bob always had beef cattle and adopted innovative farm practices. His farm was one of the first one in the area to be tile drained. He grew the first alfalfa stand and he was one of the first one to overwinter his beef cows in the bush. Bob quickly noticed that his cattle were healthier by being outside and in good condition with the better quality forage produced on the farm. He was a leader when it came time to work with the local SCIA on forage projects dealing with fertility and ph.

Bob's leadership was also visible off the farm. He was a founder member and the first president of the Cochrane Cattlemen's Association in the 1960's. He was also president, director and presently a member of the Cochrane South Soil and Crop Improvement Association. Bob also worked for the Matheson fair board, the local arena and as the local weed inspector.

He was also very instrumental and gave many hours to the Cochrane South Pasture Committee. Bod was also a fence viewer for at least 15 years, a service he rendered to the municipalities of Black River - Matheson.

At the age of 68, Bob is still actively farming with his wife, Betty Joan. They have five children, Susan, Edith, Nancy, Laura and Brian.

CONGRATULATION BOB ON RECEIVING THE "1994 AWARD OF MERIT".