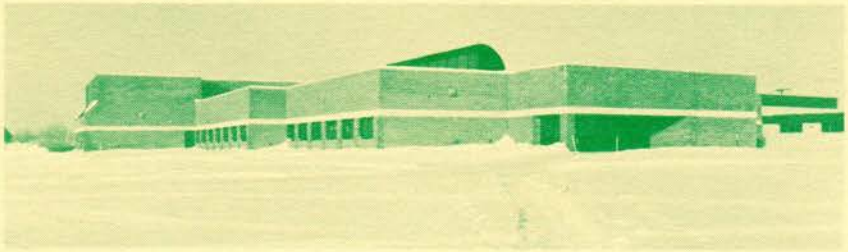
PROCEEDINGS
1988

North Eastern Ontario Agricultural Conference



at the

New Liskeard College of Agricultural Technology

TABLE OF CONTENTS

WELCOME TO THE CONFERENCE

David Beattie, Director
New Liskeard College of Agricultural Technology

The New Liskeard College of Agricultural Technology in cooperation with the North Eastern Ontario Soil and Crop Improvement Association are pleased to host the 22nd Annual North Eastern Ontario Agricultural Conference and Trade Show.

1988 marks the one hundredth birthday of the Ontario Ministry of Agriculture and Food, and 100 years of service to Ontario Agriculture. Tremendous progress has been made in the industry during that period and will continue in the future through the continued cooperative efforts of all segments of the industry.

The North Eastern Conference and Trade Show is a prime example of cooperative effort by those involved in Northern Agriculture, for the benefit of producers and the industry as a whole.

The conference program covers a broad range of topics with high quality speakers to provide up-to-date technical information, research results and an analysis of current issues in farm management and marketing. The Minister of Agriculture and Food, Jack Riddell, will attend the conference and speak at the conference banquet.

This year the program includes a full day of workshops on horticultural topics in recognition of increasing interest in alternate crops and possible market opportunities for horticultural crops in the North.

The Trade Show will feature many displays of commercial products and information for producers. College staff have organized several hands-on sessions and demonstrations for your participation.

Welcome to the New Liskeard College and the North Eastern Conference. I am sure your participation will be both profitable and enjoyable.

NORTH EASTERN ONTARIO AGRICULTURAL CONFERENCE

MONDAY, FEBRUARY 22

7:30 P.M. — ANNUAL MEETING OF NORTH EASTERN ONTARIO SOIL AND CROP IMPROVEMENT ASSOCIATION
Lecture Theatre - New Liskeard College of Agricultural Technology

---

TUESDAY, FEBRUARY 23

8:00 A.M. — COLLEGE TOUR, LIVESTOCK FACILITIES
Front Entrance - Education Building

9:00 A.M. — CONFERENCE REGISTRATION AND TRADE SHOW

C O F F E E

JOINT SESSION- AGRICULTURAL UPDATE
Room: Lecture Theatre
CHAIRMAN: Reg. Lentir, President N.E.O.S.C.I.A.

10:00 a.m. — Welcome to the Conference
David Beattie, Director NLCAT

10:15 - 10:45 a.m. — Agricultural Outlook for 1988
Dave Hope, Head Farm Business Management Section
NLCAT

10:45 - 11:15 a.m. — Field Crop Update for 1988
John Rowsell, Agronomy Section
NLCAT

11:15- 12:00 — FREE TRADE
Robert Seguin, Director Economics and Policy Branch
O.M.A.F.

12:00 - 1:30 P.M. — LUNCH - COLLEGE RESIDENCE

CONCURRENT SESSIONS

Lecture Theatre
CROP PRODUCTION AND MARKETING
Chairman: Les Hillstrom
Algoma District

ROOM C & D
HORTICULTURAL CROPS
Chariman: Claude Genier
Cochrane District

.../2

1:30-2:00 p.m.
Forage Mixtures for Northern Ontario
Laurier Guillemette
Kapuskasing Research Station
Agriculture Canada

2:00-2:30 p.m.
Pesticides and Agriculture
A.C. Spires
Northeastern Regional Office
Ministry of Environment

1:30-2:00 p.m.
Cole Crops for the Cool North
Becky Hughes
Agronomy Section
NLCAT

2:00-2:30 p.m.
Direct Marketing of Horticultural Crops
Bob Cobbledick
Marketing Specialist
OMAF

2:30-3:30 P.M. REFRESHMENTS and TRADE SHOW

Lecture Theatre
Successful Farm Management
Chairman: Ken Gray
Muskoka District

3:30-4:30 P.M.
Panel of Farmers from the North
Tom Murdock,
Algoma District
Brian Schubert,
Timiskaming District
Murry Becker
Parry Sound District
Janet Parsons,
Nipissing District

Room C & D
Horticultural Crops
Chairman: Lucien Cantin
Cochrane District

3:30-4:00 P.M.
Using Mulches for Warm - Season Vegetable Crops
Laurier Guillemette
Kapuskasing Research Station
Agriculture Canada

4:00 - 4:30 p.m.
Selling to Retailers
Peter Gass
Bay Produce Farms
North Bay

6:30 p.m. BANQUET

GUEST SPEAKER: Honourable Jack Riddell
Minister of Agriculture and Food

.../3

WEDNESDAY, FEB. 24

Lecture Theatre
Engineering
Chairman: Steve Mailloux
Sudbury District

9:00 - 9:30 a.m.
Concrete Tower Silo
Maintenance and Repair
Hank Bellman
Field Engineer
Walkerton

9:30 - 10:00 a.m.
Storage of Big Bale
Pat Plue
Field Engineer
Nepean

Room C & D
Farm Management
Chairman: Lloyd Byers
Parry Sound District

9:00 - 9:20 a.m.
Accrual Accounting
Dave Hope
Head Farm Business
Management
NLCAT

9:20 - 10:00 a.m.
Income Tax Reform
Gary Pickard
Head Business
Management
KCAT

10:00-
11:00 a.m. — REFRESHMENTS and TRADE SHOW

11:00 -
12:00 — Hands on Sessions and Demonstrations
Computers, AI in Sheep, New Sprayer
Technology, Motor Oils, Combine Adjustments for
Wheat

12:00-
1:30 p.m. — - L U N C H - COLLEGE RESIDENCE

AWARDS PRESENTATIONS: Reg. Lentir, Chairman,
Forage and Seed Show

CONCURRENT SESSIONS

Lecture Theatre
Beef Management
Chairman: Albert Helin
Cochrane District

Room C & D
Dairy Management
Chairman: Wayne Burnside
Nipissing District

.../4

1:30 - 2:00 p.m.
Crooked Calf Syndrome
Dr. Julien Proulx
Superintendent
Kapuskasing Research
Station
Agriculture Canada

2:00 - 2:30 p.m.
Impact of Scrotal
Circumference of
Beef Bulls
Barry Callaghan
Head Livestock Section
NLCAT

1:30 - 2:00 p.m.
Prospects for the
Future in A.I.
Harley Nicholson
Eastern Breeders

2:00 - 2:30 p.m.
Breeding for Milk
Compositional Quality
Dr. John Gibson
University of Guelph

JOINT SESSIONS

Room - Lecture Theatre
Chairman: Terry Phillips Timiskaming District

2:30 p.m. District Soil and Crop Improvement Association Projects
Algoma - Fall pasture using Kale and Triticale
Nipissing - Time of Cutting Trial
S. Clare - Algoma Cereal Production Study
Timiskaming - A report on Hard Red Spring Wheat

OFFICERS - N.E.O.S.C.I.A. 1987 - 88

EXECUTIVE

Past President	Lloyd Byers, Parry Sound District
President	Reg. Lentir, Manitoulin Island
1st Vice-President	Terry Phillips, Timiskaming District
2nd Vice-President	Steve Mailloux, Sudbury District
Secretary-Treasurer	Stephen Clare, Soils and Crops Specialist

ZONE DIRECTORS FROM O.S.C.I.A.
Glen Tulloch, Iron Bridge
Wayne Burnside, Cache Bay
George Struyk, Cochrane

DIRECTORS:
Les Hillstrom, Algoma District
Claude Genier, Cochrane North District
Albert Helin, Cochrane South District
Lucien Cantin, Cochrane West District
Ken Gray, Muskoka District
Wayne Burnside, Nipissing District

REGISTRATION FEE: $7.00

AGRICULTURAL OUTLOOK 1988

Dave Hope
Head Farm Business Management
NLCAT

The stock market crash in October of last year focused a lot of attention on the economic prospects in North America and around the world. We don't, however, know a lot more now than we did before. The predictions made by analysts still run the gamut between strong growth ahead to future economic disaster. One thing is true, the increased internationalization of the marketplace has made predictions so difficult one becomes suspicious of anyone who is very confident that he knows what will happen.

The growth of the Canadian dollar against its U.S. counterpart is an important factor in the livestock markets. There are two main reasons for the dollar strength: 1) The strong growth in the Canadian economy. 2) The anti-inflationary strategy of John Crow, the head of the Bank of Canada. His policy of keeping Canadian interest rates high compared to the normal spread between Canadian and U.S. rates drove up the Canadian dollar. Although I expect no major change in his stance against inflation, I don't expect the dollar to rise a lot more. Our interest rates should come down somewhat in 1988 if there is no upward move in U.S. rates.

The dominant factor in my U.S. economic outlook is the 1988 presidential elections. This will probably dictate greater growth than would otherwise be expected as the administration puts off any policies that might impact negatively on the economy until after the election. This should keep U.S. interest rates lower than they would otherwise be. We can expect a similar pattern in Canada.

There are many interesting aspects in the agricultural outlook. The outlook for had red spring wheat is of prime importance to local farmers. It appears that the two price wheat policy is on its way out. This could have the impact of significantly reducing the returns to local wheat producers. The federal government has made vague commitments on compensation. I believe that no decision has been made on the level of compensation or on the method of dispersal. That there will be any compensation especially beyond the 1988 crop, is still in doubt. I do not expect an announcement before May so this year's planting decisions could be made without an accurate idea of the returns for the 1988 crop. I believe that the production of high quality bread wheat will be profitable this year regardless of the final policy decisions. One thing producers should not do is plant the variety Max. There is no demand for this variety from the millers. Feed wheat prices will remain low.

A real pleasant surprise to many people last year was the price of oats. The price was high for two years in a row. That should almost guarantee an expansion of oat acreage this year and a corresponding drop in the price. With greater availability, the difficulty of meeting the quality specifications from Quaker Oats in Peterborough should also increase.

/2

In the other feedgrains, particularly barley, I expect very little movement in price. We probably have seen prices as low as they will go. Barley and corn could move back to their lows or marginally improve depending upon this year's growing season, particularly in the U.S. corn belt. The price will not move up very much even with a poor crop as the carryover corn stocks remain large.

There is more room for improvement in oilseeds. We saw a significant increase in the price of canola over the last six months due to an overall improvement in world edible oil prices. If we get a poor soybean crop in 1988 we could see another run up in price. A very good crop could drive prices down somewhat. The upside potential is considerably larger than the downside risk.

For livestock, we are looking at lower beef cattle slaughter numbers again. This will, however, result in little improvement in fat cattle prices. Total meat supplies will be large in 1988 and this will keep a lid on the potential price of fat cattle. If the dollar continues to climb prices could average below year-ago levels.

Feeder cattle numbers will remain low and this should mean good prices for the cow-calf man again this year. I doubt, however, that prices will be much higher than last year. With little improvement in fat cattle prices and possibly higher feed prices, the feedlots will be in a very tight position again.

Lots of people are looking for alternate crops so a look at the outlook for grass seed is warranted. Grass seed prices were high in 1986 and higher in 1987. I am looking for prices to fall back to their 1986 levels this summer and to fall considerably more by 1989 or 1990. Production is expected to increase dramatically. Western prices are already coming down for some forage seed crops such as red clover seed.

It appears that grain prices hit their lows in 1987. The pattern of price increases is unlikely to be steady. Weather will again become a very important factor. Government policies are starting to change in a way that will assist price recovery and the overly large surplus stocks of grain are getting slowly smaller.

One fact we must realize is that government payments represent a significant proportion of grain receipts. If grain prices rise these payments will fall, so there must be very large price increase before the farm income generated from the major crops increase.

1987 Crop Research Update

John Rowsell

New Liskeard College of
Agricultural Technology

The field crops research program at New Liskeard College of Agricultural Technology consists of cultivar evaluation of cereals, forages and oilseeds, cereal management trials and some work on the use of leafcutter bees for pollinating alfalfa. Data is used in the formulation of the provincial recommendations. The agronomy section had over 5,000 individual plots in 1987. Don Leggett is the senior technician in the section and Alex Skepasts is the head of section.

Forages

We were pleased that the Ontario Forage Crop Committee, during the July inspection tour of all plots from which data stated that our forage plots in 1987 were the best in the province. None of the tests were rejected by the committee on the basis of non-uniformity or invasion by other species. This is quite an accomplishment considering that some of the tests were seeded in 1984.

There are some 56 cultivars of alfalfa recommended in the 1988 edition of publication 296; 38 early or Saranac type and 18 medium or Iroquois type. Our results come from a 1985 seeding.

The data show no significant yield differences between the recommended medium alfalfas. The average yield in 2 cuts of medium alfalfas was about 7500 kg/ha. Over 1/2 of the 18 cultivars topped 8,000 kg/ha.

There were significant differences in early alfalfas although they were small. The average yield was 7,000 kg/ha. These tests tell me that, under good growing conditions, the recommended cultivars of alfalfa are similar in yield and cultivar selection should be made on other criteria.

Yields in 1985 and 1986 seedings of red clover in a 2 cut system were as good as those from alfalfa. Prosper I yielded over 8,000 kg/ha from both eth 1985 and 1986 seedings.

Brome grass seeded in 1985 was highly productive in 1987 yielding an average of nearly 11,000 kg/ha in two cuts. About 60% of the yield came from the first cut for both alfalfa and red clover whereas the split between cuts of brome was more even showing brome's ability to continue to produce in the summer. This is reflected in our alfalfa hay test where brome and alfalfa out yielded alfalfa alone in the past 2 years.

Whereas brome continued to produce in the summer, we did not

get a second cut off of timothy plots. The one cut that we did get gave an average of 5,600 kg/ha over the cultivars included in the test.

Vantage continues to be a high-yielding reed canary grass giving over 8,300 kg/ha from the 1984 and 1985 seedings. The other cultivars are not far behind though. Yields in the orchard grass test were comparable to those from the reed canary grass test.

Tall fescues and meadow foxtails yielded between 3,000 and 4,000 kg/ha; both species being suitable for pastures.

Cereals

We evaluate oat and barley cultivars in several ways. First is under "good" conditions; early seeding, good drainage on fertile, neutral pH soils.We have both Ontario and western regional tests under these conditions. Usually we see no differences between the recommended cultivars.

This was again true this year for barley. The average yield was 6,200 kg/ha (115 bu/ac) with a 50 lb bushel weight. The new cultivars, OAC Kippen, Albany and Joly ranked 1, 2 and 7 respectively amongst the eleven 6 and 2-row cultivars in this test. Leger and Bruce yielded well. Bruce may be removed from the recommended list next year. There are indications from southern Ontario that a new strain of mildew has evolved that Leger is particularly sensitive to.

We did see some differences between the yields of oat cultivars this year under these good conditions. OAC Woodstock, Dumont and Oxford yielded less than the average for the hulled cultivars, which was 5,200 kg/ha (136 bu/ac). Tibor, the hulless cultivar, yielded 3,700 kg/ha which is less than the groat yield of the hulled cultivars.

We also run the regional barley and oat tests with and without the trace elements manganese, copper and zinc. There was no response on our soil to these trace elements nor was there interaction between cultivars and the trace elements. The same cultivars of oats and barley that that were mentioned earlier came out with different rankings. Leger barley and Oxford oats came out on top in these tests showing that the performance of the recommended cultivars is so close that it is difficult to pick the best one. Leger hit 7,271 kg/ha in a cooperative trial for licensing new cultivars. That is 135 bu/ac.

The regional tests are also set out at a site that has soil that is not underdrained and has a pH of 5.7. Seeding on this site is later and this year was on May 13 as compared to May 5 on the better land.

The average yield of oats under these conditions was about 3,800 kg/ha as compared to 5,200 under good conditions. The cultivar Marion ranked first and second under the poorer and good soil conditions respectively.

Leger did significantly better under the poorer conditions than the other recommended barleys. Yields were 2/3 to 1/2 of what they were on neutral, well drained soil with earlier seeding.

We have been working on the intensive cereal management package with barley over the past few years. As you know, the intensive management package, or integrated as it is sometimes called, involves several factors; elevated and split applications of nitrogen, high plant populations, the use of growth regulators and fungicides. We ran a test for 3 years with all of these factors vs conventional management (recommended seeding rates, nitrogen levels and no growth regulators or fungicides). In that 3-year test, we found no advantage to the intensive package as a whole in 2 years and only a slight one, certainly not economical, in one year. We have subsequently torn the intensive management package apart and looked at its components individually.

As far as fertilizer rates and split application goes, we saw no advantage of higher rates of N and up to 6 times of application in the past. Applying the recommended amount of N, all at seeding, gave the same yields statistically and the best yields in rank when compared to higher rates of N applied in small quantities throughout the growing season. That was true over the past 3 years. This year, there was still no statistically significant yield advantage to split N applications; but, in rank, applying all N at seeding came last for the first time in 4 years.

As far as the use of Cerone goes, we normally do not have a lodging problem. We have seen, in 1 year out of 4, an advantage to using Cerone.

As far as seeding rates and spacing goes, we have a rather elaborate experiment with 4 cultivars seeded at 9 and 18 cm spacing between rows and 1,2,4 and 8 cm spacing within the rows; with and without cerone.

We haven't sorted out the results from this experiment for 1987 yet but we have, to some extent, for 1986. The currently recommended seeding rates range from 200-400 plants/m2. The rates that we used ranged from about 70-1000 plants/m2. There was a significant interaction between seed spacing within row and row spacing that indicates to me that we should really be concerned about populations in an area as a whole rather than spacings within an area. The populations that gave the highest yields corresponded to the mid-to-upper end of the recommended range; though, admittedly the test was less sensitive to seeding rates at the lower end of the range. There was an interaction between

seeding rate and variety. In general, the two row cultivar Birka was more sensitive to very thin stands than Leger, Bruce or Nord.

Cereals are marvelously compensory for variable populations through tillering. A seed of barley grown under the right conditions can easily put out 10-15 tillers. It is only at extremely high or low seeding rates where the compensory mechanism of tillering can't cope and that is what we are seeing in this experiment.

Cerone did not have an effect on yield in 1986. We had more lodging in 1987 in Nord under high populations.

We have been very fortunate to not need fungicides. We seed early and diseases set in too late to really play a major role in yield reduction.

We are also cooperating on a provincial trial on seeding dates and nitrogen rates on oats and barley. Alex Skepasts has lectured many a class and audiences at this conference on this subject. As Alex says, try to seed in late April or early May because the crop can take advantage of cool temperatures. No nitrogen fertilizer on an early seeded crop will give a higher yield than on a late seeded crop. We are working to refine this further. We are working towards being able to say that you should reduce your N fertilizer applications by a certain amount for each day after May 1 that you seed. Preliminary results indicate that you should reduce N rates by about 1.5 to 2 kg/ha for each day after May 1 that you seed.

Wheats. Durum wheats are yielding about 4,000 kg/ha at NLCAT (60 bu/ac) but they are prone to lodging. on a scale from 1-9, they averaged 6 when we had averages of 2 or 3 on other wheats and cereals. The cultivar Sceptre was shorter by about 15 cm, did not lodge yet yielded about 4,000 kg/ha. Durums are used to make pastas.

Max, Columbus and Katepwa are in a seeding rates, N rates experiment in which milling quality is also being determined. We have not yet received our data back on this provincially coordinated trial.

Roblin is a hard red that is 10 or 15 cm shorter than Katepwa or Columbus. It yielded as well at 4,400 kg/ha (65 bu/ac). Fielder is a soft white spring wheat that is about 10 cm shorter yet (76 cm). It yielded 5,700 kg/ha (84 bu/ac). Fielder was pooled last year with the soft white winter wheats.

1987 was the first year that we had a winter wheat crop that was worth harvesting. Yields were around 5,400 kg/ha (80 bu/ac) which is promissing; but, the high percentage winter kill of this crop in most years makes it too risky.

Other crops

Peas yielded about 3,000 kg/ha. Check publication 296 for cultivars because it was prepared using data only from NLCAT for the section on field peas.

We grew some lupines as a demonstration. Lupines are another forage crop. We did not take yields from the demonstarion and, in general, the plants looked pathetic.

We also participated in some provincial trials of forage corn and soybeans. We would not recommend either of these crops for most of the north because of the lack of heat.

Leafcutter Bees

Rampant humidity in the incubation room this year wiped us out of bees; only 28% successfully emerged from their coccoons. As a result, we do not have any other experiences with them this year to share although we feel that this year's weather would have been ideal for them.

SUMMARY OF FREE TRADE REMARKS

BOB SEGUIN

- Overview of Free Trade Agreement including a recap of events leading up to December 11, 1987 legal text. The Ministry consultative process since January, 1986 will also be reviewed.

- A detailed examination of Free Trade Agreement will be provided, article by article, as it impacts on the Ontario agriculture and food industry.

- Comments on the impact of the Free Trade Agreement, focusing on commodity sectors and highlighting farm income effects. These will include examination of impacts on fruit and vegetables, dairy, poultry, red meat and grains sectors.

- Discussion on various segments of the Free Trade Agreement that are unclear or remain uncertain. Included in this discussion will be a review of safeguard for fruits and vegetables ("snapback"), the harmonization of technical standards, and the unclear impacts on food processors.

- Discuss future role of Ministry, including the current examination of food and beverage processing sector impacts and the series of farm information meetings.

- Future issues will also be raised, noting ongoing GATT round on agriculture, shifts in consumer patterns, domestic policy adjustments, and technological advances.

R. Seguin

Economics and Policy Coordination
February 5, 1988

FORAGE MIXTURES FOR NORTHERN ONTARIO

By Laurier Guillemette

Presented at the 22nd North
Eastern Ontario Agricultural
Conference and Trade Show
February 23, 1988

Forage species are divided into two main groups, namely legumes and grasses. Each groups has its own characteristics which identify them and makes them adapted to different end use.

Legumes in general have short, broad, rounded leaves, deep taped roots and when inoculated with the correct rhizobium bacteria, are capable of supplying much of the nitrogen requirements by fixation from the air. Some of the more commonly used legumes in Ontario included alfalfa, birdsfoot trefoil, red clover and white clover. Legumes are valued in rotation and in mixtures because of their ability to enrich the soil with nitrogen.

Grasses, on the other hand, have long slender leaves and are not capable of fixing nitrogen for the time being. Some of the more commonly used grasses in Ontario are timothy, brome grass and orchard grass. Others such as reed canary grass, meadow foxtail, fescues and ryegrass are used less frequently and for special purpose conditions. The fine fibrous root system of grass has a beneficial effect on the soil structure and tilth.

Forages are very seldom sown in pure stands and mixtures of two or more species which are selected to meet specific needs is most often the case. In general, properly managed mixtures are more productive, more persistent and less likely to weed invasion then pure species grown alone. Factors which should be considered when selecting a mixture include:

1. - the intended use of the stand whether for hay, pasture, ditch bank or other.

2. - soil conditions such pH, drainage, compaction and soil type.

When selecting a mixture for pasture or stored feed, it is wise to select species which have similar maturities in order to promote uniform grazing and to harvest a crop which is at its peak feed value. Soil fertility is also an important factor when choosing the species for your mixture. Alfalfa, for example, requires an adequate drainage and a soil pH above 6.0. Other legumes are less demanding, while grasses are generally most tolerant of adverse soil conditions. Legumes are very responsive to phosphate and potash fertilizers, whereas grasses respond very well to nitrogen fertilization.

.../2

In 1981, twenty one forage mixtures recommended in publication 296 and in Agdex 120/20 were established in a trial at Kapuskasing. These mixtures were evaluated under northern Ontario growing condition, under a two cut stored feed system for the period of 1982 to 1986. Crude protein percentage was recorded for both cuts for the period 1982 to 1985 and a botanical separation of the legume and grass component was done on the first cut for the duration of the trial.

The season's total dry matter yield peaked in 1984 when the average for the trial was 8374 kg/ha and reached its lowest production in the final year at 4839 kg/ha. In the first production year, 14 of the mixtures had over 50% legumes in the first cut and by the second year of production, only two mixtures had over 48% legume in the stand. In 1986, the fifth year of production, only one original forage mixture had more than 10% legumes and this was a Leo trefoil, frontier reed canary grass mixture.

By the 3rd year of production, only one of the nine mixtures containing alfalfa still retained more than 40% of alfalfa and this was in association with 6 lb. of Champ Timothy.

The alfalfa and trefoil based mixtures had almost an identical percentage of legume in their stand (+/- 65%) in the first production, however, by the second year, the alfalfa based mixtures only contained 19.3% of legumes and the trefoil based mixtures still contained over 36% legumes and the red clover mixtures were down below 10%.

By the third year of production, the trefoil based mixtures still contained over 30% trefoil, whereas the alfalfa based mixtures were down to 17%. In the fourth and fifth year of production, the % legume remaining was less than 10% and some instance less than 3% in many mixtures.

In conclusion, when the 21 mixtures were examined for overall yield over a period of 5 years, the Champ timothy, Ladino, white clover mixtures appeared on top. More details on individual mixtures performances will be shown on the tables during the presentation.

COLE CROPS FOR THE COOL NORTH

BY: Becky Hughes
NLCAT

Broccoli, cabbage and cauliflower are commonly called cole crops. Cole crops are cool-season vegetables which develop best under cool, moist conditions.

Vigorous growth is essential for a high quality cole crop. A constant supply of moisture and split applications of nitrogen are necessary to maintain vigorous growth. Hot conditions spoil the quality and compress the harvest of all three crops with cauliflower being the most sensitive.

The cool, moist climate of northern Ontario should enable growers to produce high quality cole crops throughout the summer and early fall.

Research on the production of cole crops was initiated at the New Liskeard College of Agricultural Technology in 1981 and continued through 1984. Various cultivars and planting dates were evaluated. Direct seeding was compared to transplanting, the traditional method of planting broccoli, cabbage and cauliflower.

Of the three cole crops broccoli was the most consistent in yield and quality. Marketable yields ranged from 3.87 to 9.39 tonnes/ha.

Harvesting of the transplanted crops usually began in July and ended in September. The direct-seeded crops were ready to harvest in early to mid-August, depending in the year.

Marketable yields of cabbage ranged from 2.91 to 9.39 tonnes/ha. Head splitting caused by improper watering practices resulted in large numbers of unmarketable heads in some years. The direct-seeded cabbage crops were harvested from mid-August until mid-September in three of the four years. Harvesting of the transplanted crops began in mid to late July and ended in August or September.

Cauliflower produced the most variable yields of the three crops. Marketable yields ranged from a low of 2.68 tonnes/ha to a high of 13.79 tonnes/ha. Quality was poor for a number of the treatments. The transplanted crops of cauliflower were harvested from late July until late August or early September. In most years, the direct-seeded crops were harvested in September.

In conclusion, we found that unfavorable weather conditions for the growth of these crops can occur throughout the growing season. Multiple plantings will help decrease the risk of crop failure. As well, a good irrigation system is essential to consistently produce high yields.

Based on this study, direct seeding cannot be recommended for cauliflower and should be used with caution for fall crops of broccoli and cauliflower in northern Ontario.

1988 North Eastern Ontario Agricultural Conference & Trade Show

Direct Marketing of Horticultural Crops

Robert H. Cobbledick, Plant Industry Branch
Ontario Ministry of Agriculture and Food, Vineland Station

I work with growers throughout Ontario who are involved in Direct Farm Sales.

Direct Farm Sales is simply a grower who sells directly to a consumer. The most popular ways are: - through a Farmers' Market
-PYO farm
-Roadside Market

Wherever there are people there is an opportunity to market them something.

And the principals are the same whether we are marketing produce or pjamas. Unfortunately all my examples today will be of produce.

I would like to start off talking about Farmers Markets because I feel they have the greatest potential for you for several reasons:

(1) If you are new in fruit or vegetable production, I encourage you to TRY ONLY A FEW CROPS (say 2 to 5) but do a real good job on them rather than spreading yourself too thinly over a whole bunch of crops.
Also with a limited product line, it is difficult to draw people out into the country but 10 growers each with only a few crops can get together, form a Farmers Market and have a great selection for consumers to choose from.

(2) LOWER MARKETING COSTS
(a) If you were to set up something at your farm, you may have to build some kind of a STRUCTURE to sell from.

(b) if it is not on a busy roadway, you would have to spend money on advertising and signs.

(c) at a farmers market you can limit the hours and days you are open for business to the times the Farmers Market is open. At the farm you will find people driving in all hours of the day.

(d) at a Farmers Market, because you only sell on the 1 or 2 days/week that the Farmers Market is open, you can better organize your harvest. You pick today for tomorrow's market.
At the farm you may pick for today's sales only to find you don't have many customers that day and you end up throwing out a lot of your produce.

(e) In town, you will be able to get more traffic driving by therefore sales should be higher.

(f) as a group you can pool some money to advertise. Whereas at the farm you would bare all those advertising costs yourself.

/2

The disadvantages of a Farmers Market might be:
- if it is outdoors and it RAINS business is LOWER
- you can have a wide range of quality and therefore a wide range in price between different vendors at the market.

The "Components of a Food Farmers Market" are:

(1) CONTROL (layout)
- you want to control the movement of your customers so that they walk by as many vendors as possible.
- this means putting the most popular items toward the back of the market.

(2) LOCATION
- pick a visible location for the market

(3) PARKING
-make sure there is adequate convenient parking

(4) CLEANLINESS
- consumers want to enjoy shopping. Keep the market neat.

(5) ADVERTISING AND PROMOTION
- to attract consumers you have to get their attention, draw them away from their traditional produce supplier.

Always remember the "Consumers Law".

"NO ONE HAS TO BUY PRODUCTS AT YOUR FARMERS' MARKET"

We must provide what the consumer wants if we hope to be successful.

That means offering QUALITY because:

THE BACKBONE OF MARKETING IS QUALITY

The success of a market is built on Repeat Customers and Repeat Customers are happy customers.

ROADSIDE MARKETS

They don't have to be big but they should be attractive.
The real crux to a successful Roadside Market is LOCATION.

As it is with Farmers Markets, Restaurants, Shoe Stores, etc.

So if your farm is not well located you have some options.

GO WHERE THE PEOPLE ARE:

(1) Locate your outlet in a well travelled area near a variety store or gas station or Canadian Tire Store.

(2) Several marketers have also built up a good business servicing privately run campgrounds.

With Roadside Markets it is a lot easier to be successful if you are on a well travelled road.

But you can do it on a back road if:

- you spend more money on advertising
- you are extra good at whatever you produce for consumers to justify driving that extra distance out of their way.
- you offer something unique, such as cut-up vegetables all set to go home and use with vegetable dip.
- you have entertainment - a hay mow for kids to play in or hay rides, but entertainment really only works to generate weekend business.

Finally PYO

PYO at this time is not a growth industry in North America. Back in the late 70's and early 80's when inflation was high and food was a topic of discussion in the media almost daily, consumers saw their incomes being eaten up by high interest rates, higher clothing, fuel, and of course food costs. PYO was looked at as one way to help curtail food costs, and leave more of their income for discretionary spending. PYO expanded by leaps and bounds to meet that demand. Then the economy began to change. Expansion stopped and the industry has been holding it's own every since.

There is a strong opinion that with more Dual Income families, a low inflation rate, and low unemployment that consumers are less concerned about how they spend their money and more concerned about how they spend their time.

What I see are Farms who offer more consumer services, better location, friendlier staff, a place for kids to play, etc., are growing at the expense of traditional straight "product" oriented operations. So any grower who is looking to diversify into PYO, I would look around and see what competition you have:
- are they doing a good job.
- could you do better.

There seems to be more interest in small fruits as a group than any other PYO crops.

You may have enough PYO strawberries in July but what about Day neutral strawberries both PYO and picked for market. Your summers should be ideal.

Raspberry varieties like Boyne, Killarney, Festival, and Nova should be suited to your area for PYO.

You might also look at low bush blueberries, birds can be a problem but there may be a market for blueberries both PYO an picked for resale at a Farmers Market.

I would like to finish by saying, consider organizing a Farmers Market and Bob Chorney, located at O.M.A.F., 1496 Wellington Street East, Sault Ste. Marie P6A 2R1 (Tel: 705-253-1161), has done a lot of work organizing Farmers Markets in Northern Ontario.

THE USE OF PLASTIC MULCHES FOR WARM SEASON VEGETABLE CROPS

presented by L. Guillemette
At 22nd Annual
North Eastern Ontario Agricultural
Conference and Trade Show

Producing a good garden crop of warm season vegetables in northern Ontario is very often difficult during the best of our summers. Most areas of northern Ontario are not very well suited to produce a crop of the more sensitive warm season vegetables. In spite of our climatic disadvantages, difficult crops such as bush beans, sweet corn, tomatoes and peppers can within certain limits be grown with a certain amount of success in the area. Let's not kid ourselves in believing that we can compete with other parts of southern Ontario when it comes to producing warm weather loving vegetables. However, there are ways to enhance within limits the possibilities of producing such vegetables for home use or even some market gardening.

Before we attempt to grow any of this vegetables, there are basic principles of vegetable production which must be closely followed. These include such items as: site location, wind breaks, soil type, fertilization, irrigation, maturity of varieties, seed quality, transplanting, seeding, hardening, etc.

In the spring of 1986 and again in 1987, the Kapuskasing Experimental Farm with the assistance of grant from Employment and Immigration Canada (to hire summer students) and sponsored by the Kapuskasing Horticultural Society, examined the production several warm season vegetable under plastic mulches. In both of these years, trials of bush beans, tomatoes, sweet corn, sweet peppers, hot peppers, slicing and pickling cucumbers were set up to demonstrate the advantage of using plastic mulches for these crops.

Research at many other sites has clearly demonstrated some of the advantages of using a plastic mulch over the soil and some of these are:

1. Warms the soil, especially in cool season areas.

2. Reduces water needs.

3. Reduces weed competition.

.../2

4. Promotes more and faster growth.

5. Protects from insects.

6. May hasten maturity.

7. May protect against frost.

8. Produces cleaner vegetables.

In our experiments at the farm, black plastic was used instead of the clear plastic in order to reduce weed competition even though clear plastic will promote more growth than the black. Crops such as beans, corn and cucumbers were seeded directly through the plastic sheet which can be put in place several days before seeding. Other crops such as tomatoes, peppers and some cucumbers were transplanted through the plastic when they were ready to leave the greenhouse.

At Kapuskasing, significant yield and size differences were observed under a sheet of plastic. Six cultivars of yellow beans grown under plastic yielded 39% more in 1986 under a cool summer and 10% more in 1987 under more favorable conditions. Pod length was only increased by 3.8% when grown under plastic.

Similarly, 11 varieties of green beans yielded over 49% more in 1986, when grown under plastic and 15.6% more in 1987. Sweet corn, a crop which requires a warm season exhibited even more dramatic yield increases when grown under plastic. During the 1986 season, yields of saleable cobs was increased by 131% when grown under plastic and by 17% in 1987 a much warmer summer. Cob weight, length and diameter was also increased significantly.

Yields of red tomatoes was increased by as much as 33% in 1986 and size of fruits was also increased by 22%.

Sweet peppers were by far the most responsive of all the warm season vegetables. Under a sheet of black plastic, in 1986, the yields of pepper harvested was increased by 189%. The size and weight of the fruits was also significantly increased.

Another warm season crop, cucumbers, also benefited greatly with the use of the mulch as yields were increased by as much as 62%.

Therefore, from this limited amount of data and with further research in this field, it would appear that gardeners in northern Ontario could enhance their chances of harvesting a crop of these warm weather vegetables.

CONCRETE TOWER SILO MAINTENANCE AND REPAIR

H.E. Bellman, OMAF, Ag. Engineering Service, Walkerton
February 1988

Just as farm tractors require regular maintenance, so do farm structures - concrete tower silos included. Unfortunately most owners consider a concrete silo to be indestructible and thus give no thought to the deterioration that may have occurred or the maintenance work that should be done. The result is that a high percentage of the concrete tower silos in Ontario are now showing varying degrees of deterioration - some to an extreme and serious extent.

The Problem

When moist plant material is put into a silo it goes through an ensiling process which produces silage acids - principally acetic and lactic. These acids react with the cement portion of concrete causing an etching or corroding effect which in turn reduces the strength of the concrete to the point where it can no longer perform the required function. Without proper preventative maintenance this sort of action can ultimately lead to silo failure.

The rate and severity of silo deterioration depends on a number of things such as - the size of the silo, the original density and strength of the concrete, the moisture content of the ensiled plant material and thus the amount of free liquid (seepage) which occurs, and finally the amount of protection given to the concrete on a continuous basis.

The Solution

Basically concrete silo deterioration can be kept to a minimum by - a) only putting material into the silo which has a moisture content below that at which seepage will occur (varies with size of silo), - and b) using an acid resistant barrier coating on the inside of the silo wall (particularly at the bottom) to keep silage acids from coming into contact with the matrix cement in the concrete.

Points Re Silo Repairs, Coatings, etc.

1. All new silos should have the lower 1/4 - 1/3 of the inside wall surface covered with a suitable barrier coating before being put into service; this coating should be renewed on an "as required" basis.
2. All existing concrete tower silos should be thoroughly inspected and remedial work done as required, considering the following:-
   - Area of concern:- the greatest deterioriation occurs at the bottom of the silo - usually the 10-15 feet
   - Cleaning:- use a sandblaster or 3000 psi waterblaster to get down to clean, solid, unaffected concrete
   - Repairs:- - before applying a coating consider the following - - severely deteriorated bottom staves may be replaced with new staves, or the silo wall may be supported with a new reinforced cast-in-place concrete ring that will replace some of the bottom staves

- the hoops on a stave silo should be retightened to ensure a stable structure
- all deteriorated joints between staves should be re-mortared
- cast-in-place (poured) silos that have been seriously affected by silage acids should be reinforced by adding extra hoops around the bottom portion
- all deteriorated door jambs should be repaired to ensure a tight fit with the silo doors (to prevent air leakage)
- often the drainage system needs up-grading; use a ring of drainage tile or tubing on the inside of the silo wall covered by 6-8 inches crushed stone

- Coatings:- regardless of type coatings must - a) be resistant to silage acids (acetic and lactic), b) have Ag. Canada approval for use in the food chain, and c) be suitable for farm silo application
  - Type to use - the condition of the cleaned silo wall dictates which type of coating to use - i.e. - a liquid type coating may be used on a relatively smooth surface, but where the wall is rough (aggregate protruding) a cementitious or plaster-like coating is recommended; - reason - it is nearly impossible, with a liquid type coating on a rough wall, to get a hole-free film; any holes will allow the acids to get behind the film and attack the concrete - thus nullifying the effectiveness of the coating
  - Cementitious coatings - two basic types:- a) mixture of sand, cement and water - either applied by hand or using a gun (gunite, shotcrete, etc.); this is fundamentally a Portland cement based material and requires the addition of a suitable barrier coating to protect it from acid attack; b) proprietary mixes which, in addition to the sand, cement and water, contain an extra ingredient which gives the coating a built-in acid resistance (thus an additional barrier coating is not required)
- Follow-up:- after doing repairs, applying a coating etc.
  - empty the silo completely on a regular basis (every 1-2 years)
  - inspect the silo regularly
  - repair or replace the coating as required

STORAGE OF BIG BALE SILAGE

WHY THIS SYSTEM?

- Potential for high quality feed, avoiding harvest losses associated with dry hay.
- Relatively low investment to get into a haylage system.
- Minimum manpower requirements.

DISADVANTAGES

- Potential for spoilage losses if holes in plastics.
- Difficult to adapt to some feeding systems.

BASICS

- Follow conventional silage making rules: harvest crop at correct stage of maturity, wilt to 50 - 60% moisture, place in storage soon after baling.
- Work with small bales, otherwise package will be too heavy (i.e. 4' x 4' bale weighs 1200 lbs.)
- Maintain oxygen-free conditions -- no holes allowed.

ALTERNATIVES

1. Individual Bagging
   - Goes best if 3 people available.
   - Check bag immediately after bagging, and patch punctures as required.
   - Heavier bags are more costly, but have better chance for successful re-use.
   - Keep storage site free from long vegetation which would attract rodents.

2. Multi-Bale Tubes
   - 2 people required.
   - Can put bales into storage more quickly than individual bags.
   - No re-use of plastic.

Page Two

3. Wrap

- Uses thin 'stretch' plastic.
- Must provide 4 thicknesses.
- Only 'localized' spoilage if holes in plastic.
- Ultraviolet protection for long term storage.
- Various machines available.

4. Stacks

- Requires 2 layers of 6 mil. polyethylene.
- Considerable work to cover and seal the stack.
- Cheapest storage method.
- Must size stack according to feed-out rate and time of year to be fed.

COST OF BIG BALE HAYLAGE

METHOD, MATERIALS AND EQUIPMENT			COST PER BALE *	COST PER TON *
BAGS	If $5.50 for 4 mil. black bags; one time use.		$5.50	$14.65
	If $10.00 for 5 mil. 2-ply bags; two uses.		$10.00	$13.35
TUBES	If $85 for 100' of 5 mil. tube; machine cost** - $4000; 18 bales per tube.		$6.05	$16.15
WRAP	If $5.00 per bale for plastic	Machine cost $4000	$6.35	$17.00
		Machine cost $10000	$8.80	$23.50
STACKS	If $190 for 40' x 100' sheet of 6 mil. polyethylene ***	2 - 3 stacking, 4 bale lengths, for a total of 20 bales per stack (40' x 33' outer layer)	$3.20	$8.55
		4 - 5 stacking, 15 bale lengths, for a total of 135 bales per stack, (40' x 100' outer layer)	$1.40	$3.75

* Table assumes 4' diameter x 5' bales, 1600 lbs. @ 60% moisture content or approx. 750 lbs. dry hay equivalent. 'Cost per Ton' refers to tons of dry hay.

** Machine cost based on 10-year payback @ 12% interest, 200 tons (534 bales) annual use.

*** Assume outer layer from year #1 can be re-used as inner layer in year #2, etc.

P. S. Plue, P. Eng.,
Agricultural Engineer.

ACCRUAL ACCOUNTING - WHATS THE FUSS ALL ABOUT

BY: DAVE HOPE,
Head Farm Business Management,
N.L.C.A.T.

Accrual accounting is an issue which has received a lot of attention from a number of organizations. Last year the federal finance department proposed that farmers start submitting their tax statements based on a modified accrual system. This proposal was attacked by numerous farm organizations. A report tabled a couple of years ago by a group of agricultural accountants suggested that farmers switch to accrual accounting. The topic is frequently addressed by extension personnel, bankers and others. Yet the concept remains a mystery for many people. Although the tax department has dropped the accrual accounting proposal, it is important that anyone wishing to improve the decision making process on their farm understand what accrual accounting is all about.

In accounting there are two main financial statements or summaries. The balance sheet presents a measure of financial position at a point in time. It is a listing of all that is owned and all that is owed on one day. A balance sheet is usually prepared at the beginning and end of each year and lets one know where the business stands from a financial perspective.

The other main financial statement is the income statement. This summary reflects the performance of the business over a period of time. It lists the various revenues and the costs of producing the farm's income. It is sometimes called a statement of profit or loss. Both of these financial summaries serve the purpose of rearranging the mass of financial information that is collected over a year into one-page reports that mean something. These reports have many end uses (tax filing, banking, government programs and farm analysis and decision making). A slightly different format may be appropriate depending upon the use intended.

The tax system allows farmers to report their income based on the cash system. All revenues are calculated when the money is received and all costs are included when the bills are paid. An income statement prepared under this system might not give an accurate measure of the performance of the farm during that year. Example: A farmer decides to feed out calves that would normally be sold in the fall. The income statement would include no calf sales that year and thus a sharply reduced net income. Does this mean that the farm performed poorly that year? I think you would agree that that is a dangerous assumption.

Example 2:

The next year the former sells the calves from the year before and the next year's calf crop. The income statement would reflect a tremendous improvement in performance from the year before. The performance would be overstated in this year. Much of the cost of producing those yearlings was included in the income statement the year before.

.../2

An accrual income statement is simply a measure of performance that includes adjustments to reflect when the revenues are produced and tries to match these revenues with the costs used to produce them. The main difference from a cash statement involves an adjustment for any change in inventory levels. If more livestock, crops or supplies are on hand at the end of the year than at the beginning, then the revenue is adjusted upwards to reflect this. A drop in inventories would result in a reduction of revenue. The adjustments that are necessary to change a cash income statement into an accrual income statement are not very difficult. Inventory changes are usually the most significant. We can produce a cash statement for the tax man and easily make the adjustments necessary to provide an accurate measure of performance for decision making purposes.

Few people enjoy making the entries necessary to keep a good set of books. Since we have to do it anyway, why not go one step further and develop an accurate summary of our farm performance? We know the progress that can be made by a dairyman who records the milk production by cow. Each farmer can make similiar progress on improving total farm income by using an accurate measure of the farm's performance.

INCOME TAX REFORM AND FARMING

M.G. Pickard
Head
Business Management Section
Kemptville College of
Agricultural Technology

The tax reforms proposed by the Federal Government will impact on farmers and their families in all areas of tax planning.

Regulations concerning personal tax filing, farm tax filing, retirement planning, investment decisions and eventual farm sale and/or transfer are part of the reform proposals.

In the time allowed, an overview of many areas will be attempted. It would be presumptuous to second-guess the people who draft tax legislation appears headed.

Areas of interest which will be examined include:
- new tax brackets
- replacement of tax deductions by tax credits
- investment implications
- farm tax
- tax implications of farm sale and/or transfer
- new criteria to define part-time farmers

The most obvious thing that most tax payers will notice when filing their 1988 tax-year return will be the removal of many familiar deductions and their replacement by tax credits. A number of these disappearing deductions include:

- Canada Pension Plan premiums
- Unemployment Insurance premiums
- Tuition fees
- Education deduction
- Pension income deduction
- Charitable donations
- Medical expenses

Some deductions are disappearing outright with no compensating tax credit:

- Employment expense deduction
- Interest and dividend deduction

An area of interest to farmers contemplating the sale of their farm would be that of capital gains. Although the $500,000 of exempt capital gain was left in place for farmers, receipt of more than $40,000 of taxable capital gain could very well trigger the alternative minimum tax provisions.

As concerns annual filing, traditional rules as to the use of the farm home and farm vehicles appear under revision. A new put-in-use rule could delay the claiming of the investment tax credit and capital cost allowance expense claim regarding new structures.

All in all, some new planning tactics will probably be required as the new tax proposals become implemented and better understood.

Feb. 17/88

CROOKED CALF SYNDROME

Dr. J. Proulx, Superintendent
Kapuskasing Experimental Farm

The condition called "Crooked Calf Syndrome" was observed in the Prince George area of British Colombia since the mid-70's. The condition was also observed on a beef farm in Hearst, and last year on one farm at Matheson.

During the earlier years, it was thought that the condition was caused by ingestion of a toxic plant of the lupine family. The name of the condition "Crooked Calf Syndrome" originated at that time. Investigations conducted by Dr. Carl Ribble who performed his M.Sc. at the Western College of Veterinary Medicine in Saskatoon, have shown that this condition is not the same as lupine poisoning. It is similar to a condition called Acorn poisoning seen in California.

The condition has been renamed "Congenital Joint Laxity and Deformity" (C.J.L.D.) to better describe the anomaly. It is characterized by marked joint laxity at birth, making it at times impossible for the calves to stand and nurse. When standing, affected calves walk on their dewclaws, their joints are unstable, and the animals demonstrate various degrees of bowed legs. Most of these calves will be dwarfed due to markedly shortened limbs. Incidence of the anomalies as been as high as 45% of the calf crop on the seven farms studies to date.

The major clinical sign is joint laxity, being seen in 91% of cases. Disproportionate dwarfism is present in 71% of cases and superior brachygnathia being seen in 24% of cases in combination, joint laxity and dwarfism is seen in 57% of cases and all 3 clinical signs occur simultaneously in 20% of cases.

C.J.L.D. appears to be associated with the exclusive feeding of grass or clover silage to overwintering beef cows. Feeding trials were conducted with pregnant beef cows during the winter of 1987-88. The results of these feeding trials will be discussed.

C.J.L.D. appears to be distinct from all previously reported bovine congenital defects except for "acorn calves". The condition can be alleviated by feeding either grain along with the silage, or by feeding hay for part of the winter. This is the only management tool which seems to be effective in reducing the incidence of the disease at this time, because the etiology or the cause of the condition has not been found.

THE SIGNIFICANCE OF SCROTAL CIRCUMFERENCE MEASUREMENTS OF BEEF BULLS

Dr. Barry D. Callaghan
Head, Animal Science Section
NLCAT

In Ontario, over 97% of beef cow herds are bred by a bull in natural service according to a survey conducted in 1986. Yet only 13% of these bulls were evaluated for growth characteristics and almost none for breeding soundness. It has also been estimated that up to 30% of bulls used in natural service have reproductive problems and many more are probably barely adequate. When we consider that in the beef industry, the cow calf operator derives most of his income from the number of calves born, then fertility is obviously the most important trait. The first consideration in beef production has to be fertility. The preceding facts indicate that great improvements can be made by subjecting our bulls to selection pressure for traits related to breeding soundness and fertility.

Measurements of scrotal circumference (SC) in the bull have been the focus of much discussion and research in recent years to determine its heritability and relationship to semen traits and potential fertility. Results indicate scrotal circumference is highly heritable and genetic correlations of scrotal circumference with semen traits and potential breeding efficiency are consistently high and positive. Scrotal circumference has also been shown to be genetically correlated to age at puberty in heifers. Therefore replacements selected from daughters of bulls with above average SC measurements should reach puberty earlier, be more fertile and have a longer productive life in the herd.

This discussion will examine measurement techniques, factors affecting testicular development such as breed, age and weight and recommended minimum measurements for bulls in good condition. The potential use of adjustment factors for age and weight will also be discussed.