

*Proceedings of the*  
*26th ANNUAL*  
**NORTH EASTERN ONTARIO**  
**AGRICULTURAL CONFERENCE**  
**FEBRUARY 28-29, 1992**



**NEW LISKEARD COLLEGE OF**  
**AGRICULTURAL TECHNOLOGY**

# 1992 CONFERENCE PROCEEDINGS

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# 26th ANNUAL NORTH EASTERN ONTARIO AGRICULTURAL CONFERENCE AND TRADE SHOW

New Liskeard College of Agricultural Technology  
February 28 & 29, 1992

TRADE SHOW OPEN - 1:00 - 9:00pm, February 28 and 8:00am - 6pm,  
February 29.

POSTER SESSIONS - Northern Ontario Research - 1:00 - 5:00pm, February 28  
and 8:00am - 6:00pm, February 29.

N.E.O.S.C.I.A. CHAMPIONSHIP FORAGE AND SEED SHOW, AND THE POTATO  
SHOW - 8:00am - 6:00 pm, February 29.

## FRIDAY, FEBRUARY 28

### DAIRY PRODUCTION

1:30 - 3:30 pm

Farms with the Highest BCA's in  
Northeastern Ontario - Panel Discussion

James Anstice, Tehkummah  
(Manitoulin-Sudbury West)

Paul Gumpnich and Leo Giesen, NLCAT  
(Timiskaming District)

Daniel Olivier, Ferme Longvallon,  
Verner (Sudbury E.-Nipissing W.)

John Peters, Norhurst Farms, New  
Liskeard (Timiskaming District)

Bruce Posch, Thornloe  
(Timiskaming District)

### NORTHERN ONTARIO FARMERS' MARKETS ASSOCIATION ANNUAL MEETING

2:00 - 3:00 pm

Welcome

NOFMA Report

Joanne Barrie, President, Thunder Bay

OPFMA Report

Charlene Lambert, Chair, Ottawa

A Look at Ontario's Farmers' Markets

Bob Chorney, Executive Director, OPFMA,  
Sault Ste. Marie

3:00 - 4:00 pm

Small Group Sessions -  
Reviewing 1991 Activities

4:00 - 4:30 pm

Reports from Small Group Sessions

7:00 pm     N.E.O.S.C.I.A. ANNUAL MEETING

## SATURDAY, FEBRUARY 29

### FORAGE CROP PRODUCTION

10:00 – 11:00 am

**Radical Changes in Forage Fertilizer Recommendations**  
Dr. Mark D. Stauffer, Director,  
Eastern Canada, Michigan and New York  
Potash and Phosphate Institute

11:00 – 11:10 am

**Preview of the 1992 North Eastern Summer Tour**  
Reg Lentir, Manitoulin District  
Director, N.E.O.S.C.I.A.

11:10 – 12:00 noon

**Are Forage Analyses Giving the True Picture?**  
Gwen McBride, Manager, Feed Advisory  
Services, OMAF

12:00 – 1:30 pm **LUNCH & TRADE SHOW**

### EQUINE

1:30 – 3:30 pm

**Equine Nutrition Workshop**  
Dr. R. Wright, Equine Specialist, OMAF,  
Guelph  
Wendy Johnston, Equine Section, NLCAT

### NORTHERN ONTARIO FARMERS' MARKETS ASSOCIATION ANNUAL MEETING

9:30 – 10:00 am

**NLCAT 1991 Research Report**  
Becky Hughes, Horticulture Section,  
NLCAT, New Liskeard

10:00 – 11:00 am

**One Row to One Acre**  
Barbara MacLean, OMAF Horticultural  
Crop Advisor, Thunder Bay

11:00 – 12:00 noon

**Innovative Crops for the North/  
Surprising Opportunities !**  
Mike Columbus, OMAF Resource Management  
Specialist, Simcoe

### NORTHERN ONTARIO FARMERS' MARKETS ASSOCIATION ANNUAL MEETING

1:00 – 2:15 pm

**NOFMA Annual Meeting**  
Guest speaker – Jack Wilkinson,  
Vice-President, Ontario Federation  
of Agriculture –  
**Possible New Northern Grant Program**

2:15 – 3:00 pm

**Meet a Customer**  
Gordon Mitchell, OMAF Marketing  
Specialist, Huntsville  
Ann Board, Treasurer, NOFMA

3:00 – 4:00 pm

**Baskets & Packaging – A Demonstration**  
Barry Mills, Director, Sales and  
Marketing, Gifts n Such, Mississauga



# SATURDAY CONTINUED

## CEREAL PRODUCTION

1:30 - 1:40

### Introduction

Daniel Tasse, OMAF Soil & Crop Advisor,  
NLCAT, New Liskeard

1:40 - 2:15 pm

### Grower Panel - How I Got 100 Bushels of Barley

Maurice Beaudry, Cache Bay (Nipissing  
District)

Owen Legge, Spring Bay (Manitoulin  
District)

John Heard, Agronomy Section, NLCAT,  
Thunder Bay

2:15 - 2:30 pm

### No till in Temiskaming

Kevin Runnals, Earltown

2:30 - 2:45 pm

### Barley Inputs/Trading Bucks for Bushels !

John Heard, Agronomy Section, NLCAT,  
Thunder Bay

2:45 - 3:00 pm

### REFRESHMENT BREAK

3:00 - 3:30 pm

### Local Cost of Production in Spring Grain

Claude Peloquin, OMAF Agricultural  
Representative, North Bay

3:30 - 4:00 pm

### Marketing with TEMGRAIN

Don Mingle, Manager, TEMGRAIN, Earltown

## BEEF PRODUCTION

1:30 - 2:30 pm

### Northern Ontario's Place in the New Canadian Beef Industry

Anne Dunford, Market Analyst, Canadian  
Cattlemen's Association, Calgary

2:30 - 2:45 pm

### NLCAT Beef Research Update

Paul Gumprich, Animal Science Section,  
NLCAT, New Liskeard

2:45 - 3:00 pm

### REFRESHMENT BREAK

3:00 - 4:00 pm

### Prevention, Detection and Treatment of B.V.D. (Bovine Viral Diarrhea)

Dr. Rob Tremblay, OMAF Animal Industry  
Branch, Kemptonville

6:30 pm

## BANQUET

**'POSITIVE ATTITUDES PRODUCE PROFITABLE ALTERNATIVES'**

Paul Mann, Host of 'The Canadian Farmer'

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

## **DAIRY PANEL**

### **FARMS WITH THE HIGHEST BCA's IN NORTHEASTERN ONTARIO**

**Questions posed to the panel:**

- 1. Briefly describe your farm.**
- 2. What has contributed to your high production?**
  - a) Genetics?**
  - b) Nutrition?**
  - c) Management?**
- 3. What is the feeding schedule?**
  - how much**
  - how often**
  - what**
- 4. Does more milk (fat and protein) mean more profit?  
Has your herd become more efficient?**
- 5. For the future, what area(s) of your operation might you improve?**
- 6. What single factor would improve your BCA the most?**



OSHADENAH HOLSTEINS  
Jim Anstice, Manitoulin Island

Question #1: Briefly describe your farm.

Oshadenah Holsteins is located in Tehkummah Township on the south-eastern corner of Manitoulin Island, about 5 miles north of the ferry terminal at South Baymouth. I farm with my wife Dorothy and our two children, Esther and Alex, in partnership with my parents, Ron and Justeen. I returned home to full-time farming in 1975 after graduating from the University of Guelph. In 1976 we started shipping fluid milk through the graduated entry program. Previous to this we had a mixed farm, shipping cream, started by my grandfather when he emigrated from England in 1920.

We own 400 acres, of which 200 is workable, about 130 acres is systematically tile drained. The home farm contains the dairy barn with 30 tie stalls, and a free stall heifer barn built in 1983 to house 36 replacement stock and 8 nursery pens. We also have a small cow-calf operation consisting of 25 beef cows, on an adjoining farm.

We grow all of our own hay and have been self-sufficient in barley for the past few years. We make square hay bales and large round bales (haylage and dry).

Rolling BCA's for 1991 were 182-186-190 (composite 186). Current BCA's are 189-188-193 (composite 190). Butterfat averages 4.17% and protein averages 3.6%. Rolling production for 1991 was 8729 kg. Current production is 8927 kg. 43% of the herd is in their first or second lactation.

We have the cows classified regularly and take part in the UBI Unimating program. The herd consists of 4 VG, 12 GP, 10 G, the remainder are unclassified at this point.

We take part in a herd health program with our veterinarian, which involves pregnancy checks, post-calving examinations, and general herd consultation at 5 week intervals.

Question #2: What has contributed to your high production?

A) Genetics: Since starting to ship fluid milk in 1976 we have purchased only two cows. Gains through genetics have been as a result of using superior bulls available from UBI. The Unimating program and information from the classification process have been helpful to determine the best bull for a particular cow. I am finding, however, that the Unimating information is not always current enough to be useful.

B) Nutrition: I think our overall standard of nutrition has improved through the years. Since we have tile-drained our land we are more able to grow a consistent crop of alfalfa hay, allowing us to harvest more than one cut each summer.

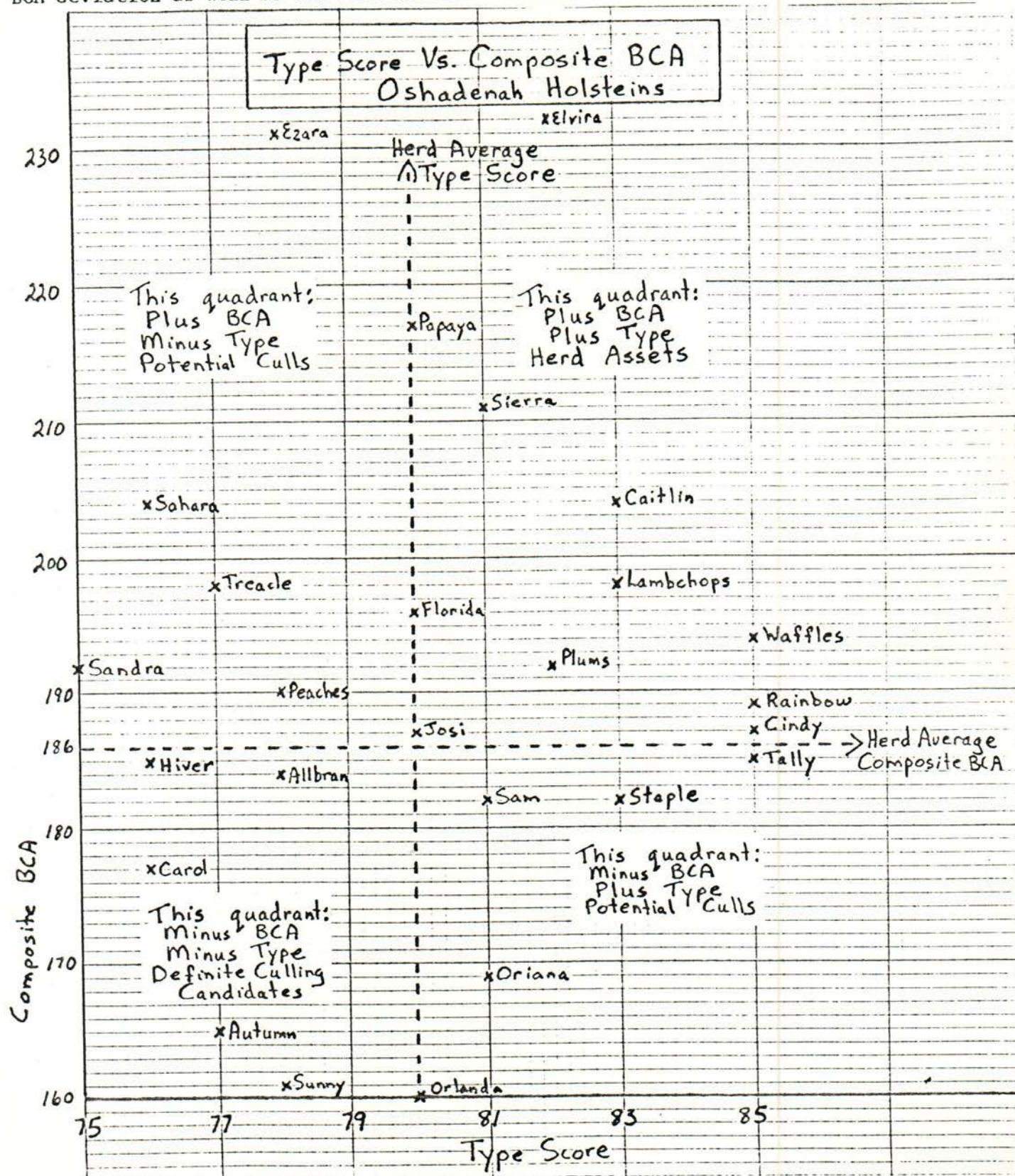
Round bale haylage has enabled us to put up an excellent quality of feed with very little investment. This method works well for a herd of our size. I am finding some inconsistency in baylage quality due to the fact that there is some spoilage occurring. This is not a great problem, since we feed any bales with spoilage to the beef herd, who seem quite happy to have it.

Considering our production level, we have a very low incidence of milk fever and acetoneemia, possibly due to all forage being long-stemmed feed.



C) Management: Since building the heifer barn in 1983, we find that the replacements have a better start, are growthy, and are calving at around 24 months.

Statistics involving both classification and BCA can often be overwhelming. We have incorporated these two factors into a simple graph, which is used to make culling decision, whenever possible (see graph below). This graph enables us to visualize the BCA deviation as well as the classification standard of the herd.





Anstice - continued

Question #3: What is the feeding schedule?

Winter Feeding Schedule:

6:30 am - Cows are given approximately 4-5 pounds fresh hay.

7:30 am: Cows are given grain mix, approx 10 pounds to high producers (those around 55 kg production), decreasing to about 3 - 4 pounds for those at 25 kg production. They are also given a top dressing of NU-EL 44% dairy supplement (2 pounds to the high producers, 1/2 a pound to those down to 35 kg).

9:00 am: The mangers are swept out, sweepings are given to heifers. The cows are then let out for exercise and they are given haylage. We split a bale between a round bale feeder outside, and the manger inside. When the cows are out in the cold weather they are not out for very long. I estimate that the cows eat between 20-25 pounds of haylage at this time.

12:30 noon: Cows are given their second grain feeding same as 7:30 am, except top dressing is not fed at this time. The cows are also given beet pulp to those that have just freshened and high producers. Quantities are difficult to estimate, since it has been soaked in water, but each of these cows gets a scoop.

2:30 pm: The cows are given dry hay free choice, as much as they will consume and estimated around 20 pounds.

5:30 pm: Before milking, the hay is pushed up to the cows.

6:30 pm: After milking, the cows get third grain feeding, top dressed with EL 44%. Same quantities as 7:30 am.

9:30 pm: The hay is pushed up to the cows again, and extra hay is offered. They receive fourth grain feeding, quantities the same, no top dressing.

In the summer the cows are on 15 acres of rotated pasture, with continuous access to round bale haylage. When the cows are inside in extremely hot weather, I try to maintain a multiple grain feeding schedule, similar to winter.

Top producers (55 kg production) will get approximately 40 pounds of grain. Low producers (25 kg production) will get 10 pounds of grain. This is all fed by hand with a scoop, so I am able to vary the ration between these levels according to the DHI report information. The cows also have access to liquid protein supplement when they are outside.

Results of last year's feed tests:

Dry hay tested 17.8% protein.

Haylage tested 20.1% protein.

Barley tested 12.5% protein.

Grain mix ration is approx 17% protein, consisting of our own barley, 34% Synchro M supplement, and LC dairy premix.

Anstice - continued

Question #4: Does more milk (fat and protein) mean more profit? Has your herd become more efficient?

According to the "Milk Value in Dollars" report enclosed with DHI, our herd averages \$4764 production per cow per year, compared to a provincial average of \$3281. In my opinion, producing more milk from fewer cows results in higher efficiency and greater profits. Our first DHI report received in 1978 indicated a composite BCA of 134. The resulting increase of 52 composite BCA points indicates an improved level of efficiency in the past 13 years.

Question #5: For the future, what areas of your operation might you improve?

Perhaps we should be considering the total litres of milk in the life span of a cow, as compared to production in an individual lactation. Increased longevity should result in increased efficiency in the herd, although it is nice to have plenty of young stock entering the herd.

Currently I am investigating methods of getting more energy into the cows in early lactation. This coming year I plan to grow only 30 acres of barley (instead of the usual 70 acres). The rest of the grain will be purchased corn. It is expected that this higher level of energy feeding will promote reproductive efficiency and better body condition during peak production.

I think in the long term I would like to consider an upright silo, but this might also involve an enlargement of the herd to make this investment practical.



# FARMS WITH THE HIGHEST BCA'S IN NORTHEASTERN ONTARIO THE TAYLOR DAIRY CENTRE

Paul Gumprich, Lecturer and Leo Giesen, Dairy Technician  
NLCAT

1. The New Liskeard College of Agricultural Technology's Taylor Dairy Centre's herd consists of 35 registered Holstein milking cows and 35 registered replacement heifers. It has been a closed herd for 5 years. The herd is now striving to be a Leukosis-free herd.

Leo Giesen, a 1983 graduate of the College, is the Dairy Technician and the milkers are Henry Jackson; also a graduate of the College and Cathy Holeksa. Since its inception in March of 1983, the dairy herd has been on the supervised testing program to obtain official records for each cow. All animals are bred by artificial insemination enabling us to use superior bulls to improve the herd. The dairy cows are type classified by the Holstein Association so that we may be better able to determine the type faults of the animals. The dairy centre has experienced many changes since its inception and has continued to improve.

In 1986, the Taylor Dairy Centre increased computer usage. Leading the way in the community towards higher technology, we have put in place computerized milk meters. These have just recently been upgraded. The data stored in the meters can be downloaded into the computer where it is very easy to sort the information and recalculate individual cow performance.

Cows are fed eight meals daily consisting of three meals of a grain ration, three of hay and two of silage. All materials fed have been analyzed to determine their nutrient content. The amounts fed are determined by balancing the ration according to the recommendations. We have been reaping the benefits of our breeding program. One heifer has type classified Good Plus and finished a 12,823 kilogram lactation. This translates into B.C.A.'s of 277 for milk, 212 for fat and 275 for protein. All heifers are raised and calved out to determine whether they may permanently enter the herd as replacements. Heifers are raised according to accepted management practices and are bred to calve at 24 months of age.

The Taylor Dairy Centre is on a herd health program. A Veterinarian visits the dairy barn once a month to do the routine pregnancy checks, palpate newly calved cow's reproductive tracts for any problems and determine if there are any other medical concerns which should be looked at. Complete reproductive and health records are kept on every animal at the dairy centre. The reproductive records kept include all calving dates, all heats are determined by careful observation of external signs and the use of cowside progesterone kits. The herd's calving interval has been at 12.3 months for the past 2 years. The number of services per conception is 1.5, the conception rate is very close to 100%. The average somatic cell count as remained under 100,000 since 1984.



The rolling herd B.C.A.'s are 200, 197, 200 for milk, fat and protein respectively. The herd's current B.C.A.'s are 205 for milk, 205 for fat and 209 for protein.

As well as acting as a teaching facility for our students, the Taylor Dairy Centre has facilitated numerous successful research projects, several of which are still under way. Research projects which have been completed include a study of the use of cowside milk progesterone kits, a trial measuring calf gains receiving milk according to body weight, calf gains receiving milk according to birth weight and analysis of calf hutches, milking animals and a trial measuring calf responses to different weaning ages receiving milk according to birth weight. Comparing water consumption to milk production. Research in progress includes a colostrum management trial, and a feeding trial using whole roast soybeans for cows. Please feel free to drop in to see the Taylor Dairy Centre or contact us for further information at any time.

2.a) Genetics has been a big contributor to NLCAT's high production. Always choosing bulls very carefully, first for superior production traits and secondly for type traits especially size and stature, never using bulls with low lifetime profit indices. Test sires are used on about 30% of the herd. These sires may come from all the different A.I. units in Canada based on pedigree indices.

b) Nutrition has continued to be a strong point of the herd. The ration has remained basically the same since 1983, only changing recently to include roasted soybeans. The ration is based on haylage (legume mix), and a small amount of hay. Feed samples are taken regularly and the ration is balanced for each individual cow. Also, we now rely heavily on the use of body condition scores.

c) Management is probably responsible for most of the improvement of B.C.A.'s over the years. Cows are kept in top condition, brushed and clipped regularly, hooves are trimmed on a routine schedule. The barn is on a monthly health schedule. Milking takes place at 12 hour intervals, and a stress free environment is provided. A good dry cow and replacement heifer program are used. All animals receive individual attention and the finest details are not overlooked.

3. Three weeks prior to calving cows receive an injection of vitamin E - Selenium and we start to lead feed the cow to get the rumen accustomed to a grain ration. At calving the cows are challenge fed watching close not to have them go off feed. Also, when the cow calves she is dewormed. In the winter all cows receive an injection of vitamin A and D. At drying off all cows receive pour on ivomec.

HAYLAGE: The bulk of the feed intake is haylage. We feed haylage twice a day and the left over is removed twice a day to keep it fresh. The cows that are milking receive about 16 kgs/feeding. We feed the haylage just before the dairy ration is



going to be dumped, to maximize haylage intake. We usually feed some first cut legume grass mix and some second cut legume hay. We do not feed haylage to the dry cows or young heifers.

**DAIRY RATION:** The cows are fed according to body condition silage and production. The chore time feeder feeds the dairy ration six times a day, at about 4 hour intervals. Usually the maximum amount fed is 18 kgs/day or 3 kgs/feeding. We are feeding a 16% natural steam dairy ration with barley, corn, pellet supplement, sodium bicarbonate, magnesium oxide with a little molasses in it. We feel this ration gives us consistence which the cows enjoy and is important for the type of volume measured feed system we have.

**PROTEIN SUPPLEMENT:** The protein supplement we are using now is whole roasted soybeans (flaked) 47% soybean meal combination. The fresh cows are slowly increased until a maximum of 3.6 kgs/day or 1.2kgs/feeding. We feed top dress 3 times a day before each milking and once at 1:00 p.m.. Because of the trial work we are doing, the amount of whole roasted soybeans to be fed is predetermined and the remainder amount is made up by the 47% soybean meal. We also top dress our minerals and salt along with the protein supplement.

**HAY:** We feed all the milking cows hay three times a day. They are fed 1.5 kgs. of hay per feeding once before each milking and before the top dress and once at approximately 10:00 p.m. The fresh cows are fed the second cut alfalfa hay and the later cows fed first cut alfalfa - orchard hay.

4. For us no! More milk, fat and protein does not mean more profit. But in general yes. The two year old heifers generate an average of \$11.50 per day from 2 years of age, second lactation heifers generate \$13.15 per day from 2 years of age and the later lactation group generates \$13.44 per day from 2 years of age. The provincial averages of \$7.70, \$8.87 and \$9.58 respectively. The herd average is \$12.56 per day from 2 years of age while the provincial average is \$8.76. It will also mean an increase in the pay cheque from improved protein yields. The cows in the herd have become more efficient, the top producing cows eat the same as the cows 2 or 3 years ago but produce 2,000 kgs. of milk more.

5. For the future: We would like to work at improving forage quality increasing energy and protein content of the forages. Also, micronutrient balance, could be improved. It is very difficult to keep on top of but is necessary for a top notch ration.

6. Embryo Transfer which would give us faster genetic progress by flushing the best cow/s or buying embryos. At this time we do not feel this is a cost effective alternative.



## FARMS WITH THE HIGHEST BCA'S IN NORTHERN ONTARIO

FERME LONGVALLON INC.  
Daniel Olivier, Verner

## 1. Briefly describe your farm.

- Incorporated in 1987
- 2 full-time employees, 2 part-time employees
- Employees scheduled year-round in order to get every second weekend off
- 110 milking Ayrshire's produce 750,000 litre/year
- Free stall housing
- Double five Herringbone parlour with take-off installed 1988
- The parlour is a one man operation, milking 40 cows/hour
- Computerized feeder since 1984
- Herd fed silage year round from 3 silos
  - 24 x 70' 1st cut haylage and 3rd cut haylage
  - 20 x 70' corn silage
  - 18 x 20' 2nd cut barlage
- 500 acres in cultivation
  - 350 tilled
  - 80 acres corn silage
  - 80 acres barley underseeded with alfalfa
  - 30 acres pasture for dry cows
  - 310 acres in hay, 400 tonne harvested in round bales, remainder harvested as silage
- Manure handled as liquid manure
  - Ram pumps and lagoons
- Chemical fertilizer only used on corn acreage

## 2. What has contributed to your high production?

Nutrition and management are by far the two major factors that contributed to my production.

Nutrition: - always a mix of 50% high energy roughage with 50% high protein roughage  
 - feeding corn silage or barley with haylage  
 - prefer 3rd cut over 2nd cut because of higher quantity of grass in 3rd cut haylage

Management: - constant routine in milking, bedding and feeding, never changing milking hours  
 - 365 days/year (from 5:30 a.m. and 4:30 p.m.)  
 - never changing the feed abruptly  
 - when filling a silo, we gradually increase or decrease the silage from the silo over a 5 day period

## 3. What is the feeding schedule?

- Silage mixed in the conveyor from 3 different silos
- We try to feed enough in order to have 50% left in bunk at the start of milking



- Every cow gets 3kgs of 14% in parlour per day
- Computerized feeder is programmed for 6 feedings per day
- Ideally, cows get 8 feedings a day
- Dual feeding is dispensed from the computer

Ration A = is a high energy ration  
18% Synchro Pellet with flaked corn

Ration B = is a high protein ration with the majority being  
by-pass protein  
44% with niacin

- One month before calving, cows are fed from the computerized feeder 2.5 kg of pre-calving supplement
- 10 days before calving, cows enter the milking barn and are fed 2.5 kgs of 18% flaked corn and 2.2 kg of 44% Early Lactation.

## Reasons for high production

1. We have selected for years, bulls that were high in butterfat, therefore our BCA for fat is quite a bit higher than milk. We used Romandale Count Crystan son in late 70's and early 80's that left our cows with superior udders, capable of higher production. We have been selecting bulls with higher production ratings and the udders of these cow's daughters seem to be holding up. We use the Unimating program from United Breeders and restrict the selection to bulls rated at least +5 for milk.

2. Nutrition plays a big part in high production and I think the quality of forage is number one. We are feeding more haylage in the last few years. Our BCA took a big jump when we started to feed the sweet white lupins. We are averaging about 60 lbs/day on 50 head which includes about a dozen first calf heifers. The palatability of the lupins is excellent.

Management is probably the area most lacking. The dairy herd receives much more attention during the winter months when we are not as busy with summer activities. We know we do not get as good production from summer pasturing but labour is greatly reduced and cost of production is much lower.

## 3. Feeding Schedule

We feed grain mix first thing in the morning before milking, then four bales of hay are fed for the whole herd. After breakfast we feed haylage and a little extra grain to fresh cows by hand. At 4 o'clock in the afternoon we feed grain again followed by a full feed of hay. That is all the feed they get until the next morning.

4. I think more milk means more profit because you can milk fewer cows. However that milk will have to contain a higher percentage of protein. At the present time comparing the old system of payment and multiple component pricing, we will be losing about \$1,000 per year because of our high butterfat test.

## 5. Areas of Improvement

a) Increase percentage of protein in milk through genetics; feeding, culling.

b) Method of feeding more concentrate

## 6. Single factor to improve B.C.A.

Quota availability would encourage us to push our cows a little harder.



## FARMS WITH THE HIGHEST BCA'S IN NORTHERN ONTARIO

POSCHOLM HOLSTEINS  
Bruce Posch, Thornloe

- started milking cows in 1982, bought farm in 1988, shipped cream
- shipped 500 litres #1 quota/day
- shipped 196,000 litres milk in 1991
- 1991 B.C.A. of approximately 194-185-179
- trying various feeds to improve the protein test
- buy all concentrate (16% ration pelletized), bought 49 tonne in 1991
- have fed whole roasted soyabeans since 1985, except during 1988-89 when I first moved up here from down south
- feed approximately 200 tonne of haylage from October to May
- feed approximately 7000 bales of hay per year, plus round bales on pasture
- pasture the cows during the night, and keep the milking cows in the barn during the day, from June until it snows
- roughage is made up of mostly grasses
- have been adding bluegrass to the hay mix when seeding down
- try to raise all my own replacements for the milking herd, have found that boughten replacements seldom work out as good as the heifers I have raised
- use A.I. on every animal
- use bulls that are high for type, especially bulls that are high for the economical traits such as: capacity, dairy character, chest/rump width (I still like angularity and strength although the Holstein Association has dropped it from the classification score card!)
- I have three cows from bulls that are + for milk
- I try to use bulls that have a + deviation for fat and protein (although the units and associations are trying to dump that philosophy, and just get us to breed for total yield)
- I believe that high + bulls for milk, without functional type are a fad that will soon pass
- I believe we don't need to ship more milk, just cheaper milk eg. if I can cut my costs by 10%, my net income will increase 20%. If I wanted to increase my net income by increased production I'd have to ship another 40,000 litres/year and it would cost me \$50,000.00 in capital outlay. Besides I would have to work 20% harder than I do now. Maybe in a couple of years I will have to rethink that mentality.
- 20% • My labour costs are minimal. I either do the work myself, or I hire someone with a machine.

## NORTHERN ONTARIO FARMERS' MARKET ASSOCIATION (NOFMA) UPDATE

The Northern Ontario Farmers' Markets Association (NOFMA) was founded in January, 1989 at a meeting of Farmers' Markets leaders from across northern Ontario. Bob Chorney, then the OMAF Marketing Specialist in Sault Ste. Marie, was one of the moving forces in organizing NOFMA and has acted as Secretary since its inception. Gordon Edwards, from the Riverside Farmers' Market in New Liskeard, was elected as the first President. Joanne Barrie, from the Thunder Bay Farmers' Markets, succeeded Gordon Edwards as President in February 1991.

In a few short years the number of Farmers' Markets in the north has tripled, while the dollar sales volume has increased 20 times. There were between seven and eight Farmers' Markets in northern Ontario in 1988. Now there are 22. Total gross sales for all the northern Ontario Farmers' Markets was \$100,000 in 1987-88. Now total gross sales easily exceed \$2 million.

NOFMA's Mission Statement is:

"To be a strong voice for all Farmers' Markets across northern Ontario in the areas of communication, co-ordination and negotiation".

Some reasons for joining NOFMA:

- Access to low-cost Comprehensive General Liability Insurance.
- The Annual Northern Ontario Farmers' Market Seminar.
- Availability of special OMAF Northern Ontario funding programs. For example, NOFMA was able to have over 1/2 million plastic bags funded by AgriNorth and these bags were distributed to markets across northern Ontario.
- Natural geographical/regional linkages... a "Northern Identity".
- Regional training programs.

An excellent 10-minute video, "Farmers' Markets in Northern Ontario" (update December 1991), is available from NOARC here at N.L.C&2.A.T.



# NLCAT 1991 HORTICULTURAL RESEARCH REPORT

Becky R. Hughes, Horticulture Section  
NLCAT

The objectives of the horticultural research program at New Liskeard College of Agricultural Technology (NLCAT) are:

1. To identify vegetable and berry crop cultivars suited to northern Ontario.
2. To evaluate production techniques to improve the production and/or economic viability of vegetable and berry crop production in northern Ontario.

## BERRY CROP CULTIVAR TRIALS

The New Liskeard College of Agricultural Technology has been involved in the Ontario Coordinated Berry Crop Trials since 1985. Through this project, new cultivars and breeder's lines are tested at up to four locations in Ontario. The results are compiled and distributed on an annual or biannual basis. Over 20 raspberry cultivars/lines and 30 strawberry cultivars/lines have been evaluated at NLCAT. NLCAT is the only northern test site.

Recently, HRIO Simcoe released three new strawberry cultivars, 'St. Williams'; 'Scotland' and 'Selkirk', and the University of Guelph released one strawberry cultivar, 'OAC St. Clair', and two raspberry cultivars, 'OAC Regal' and 'OAC Regency'. The results of our trials here at NLCAT for these cultivars, some other newer cultivars and promising lines, and the common cultivars in the north are shown in Tables 1 through 5.

'Selkirk' produces large, attractive, firm strawberries with good yields in southern Ontario. In New Liskeard, the yields were low, berry size was acceptable and the berry quality was good, however, the berries were almost too firm. Winter hardiness problems have been experienced in Minnesota. This cultivar is recommended for the fresh market and processing. 'Settler' is a mid-season cultivar with high yields and large firm berries in southern Ontario. It produced satisfactory yields in New Liskeard with large, medium firm berries. 'Governor Simcoe' is another Ontario release. It is a mid to late season cultivar currently recommended for limited/regional planting. It produces large yields of large, firm berries. It performs best on sandy soils. In New Liskeard, on a clay soil, the yields of 'Governor Simcoe' were relatively low, but the berries were large and the quality good. 'St. Williams' is a winter hardy strawberry recommended for processing, with a medium-sized firm berry and good yields. In New Liskeard, it produced low yields in one trial and high yields in another. 'Scotland' is a very late cultivar recommended for processing, which produces large firm



'Scotland' is a very late cultivar recommended for processing, which produces large firm berries. 'OAC St. Clair' produced exceptionally large berries and yields in New Liskeard in 1990. However, the berries were not very firm and in other parts of the province it is considered a good, but not exceptional yielder.

The two newly released raspberry cultivars, 'OAC Regal' and 'OAC Regency', have proven to be hardy and high yielding in New Liskeard. 'OAC Regal' is more winter hardy than 'OAC Regency'. Over four picking years, they have both matched or out yielded 'Boyne'. Both are later than 'Boyne', but they have better color. Other breeder's lines from the University of Guelph have also performed well in New Liskeard.

#### SWEET CORN CULTIVAR TRIALS

Since NLCAT last evaluated sweet corn cultivars for the north (1984), many new cultivars and types of sweet corn have been developed. Growers now have to choose between the traditionally grown normal or regular sweet corn cultivars and the sugar enhanced and super sweet cultivars.

Normal sweet corn rapidly converts sugar into starch after harvest, deteriorating rapidly. Normal sweet corns have either the su, su+ or su++ gene for sweetness. These cultivars require a minimum soil temperature of 10°C for seed germination. Those cultivars with the su+ gene are called Sugary Normals. They are sweeter than the normal sweet corn, but not as sweet as the Sugar Enhanced (SE) types. However, the Sugary Normals are earlier and have better germination than the Sugar Enhanced (SE) types. The All Sweet cultivars with the su++ gene are high sugar normal types which taste as good as the Sugar Enhanced cultivars, but germinate easier.

Sugar Enhanced cultivars have the SE gene for sweetness. They are sweet with very tender kernels. Like the normal types, they convert sugar to starch after harvest, but as they have high sugar levels, they retain their flavor longer. These cultivars are their sweetest when isolated from other corns, but it is not essential. The Sugar Enhanced types have lower seed vigor than the Normals, but better early seed vigor than the Super Sweets. A minimum soil temperature of 17°C (62°F) is required for germination. Due to their thin skin, Sugar Enhanced types are not recommended for mechanical harvesting or for shipping.

Super Sweets contain the SH<sub>2</sub> gene and do not readily convert sugar to starch after harvest. Therefore, their flavor lasts much longer than other types of sweet corn. Super Sweet kernels have a thick skin which continues to thicken as the kernel matures. Super Sweets are recommended for shipping. Proper handling is necessary to slow kernel maturity. Some find the kernels of Super Sweets too tough and the flavor too sweet. Seed germination is often a problem with Super Sweets, as they have low seed vigor. A minimum soil temperature of 18°C (65°F)



from all other corn. This can be achieved by a distance of 75 m or by staggering the pollination times by a minimum of 14 days.

Bicolor sweet corn is very popular with some consumers. Bicolor cultivars are available in the normal, sugar enhanced and super sweet types of sweet corn. Bicolors should be isolated from other sweet corns.

Early, Extra Early, Sugar Enhanced, Super Sweet and Bicolor cultivars were evaluated for yield, earliness and quality. The results are shown in Table 6 through 9. Twenty-five and twenty-seven cultivars were planted in 1990 and 1991, respectively. The poorer cultivars in 1990 were replaced in the 1991 planting. The planting dates were adjusted for the type of sweet corn and those types requiring isolation were planted a minimum of 75 m away from other corn.

The results varied with the year, with many year x cultivar interactions. Yields were generally lower in 1991, no doubt due to the poor rainfall distribution. This trial will be repeated in 1992.

#### MANAGEMENT TRIALS

In the last few years, we have been investigating the use of mulches and row covers on various crops.

#### SWEET CORN AND FLOATING ROW COVERS

Two basic types of row covers are available, those that need supports usually called tunnels and those that are supported by the crop called floating row covers.

Floating row covers are relatively new to horticulture. These lightweight covers, composed of spunbonded polyester (Reemay), spunbonded polypropylene (Kimberly Farm Covers and Agryl) or polyamid plus polypropylene (Agronet), float on top of the crop requiring no other support. They are available in widths of 64" to 48' and lengths of up to 2500'.

These covers are said to provide some frost protection, increased daytime air temperatures, increased soil temperatures, protection from insects and wind, and increased soil moisture. These conditions should result in faster germination, more rapid growth, and earlier and larger yields. Floating row covers are recommended for the production of the cole crops, lettuce, spinach, radishes, beans, carrots, onions, potatoes and strawberries in Quebec, and the production of cucumbers, squash, peppers, tomatoes and sweet corn in warmer areas. The covers should be put on at planting and taken off three to ten weeks later depending on the climate and crop. They can be used with or without a mulch. As they provide some frost control, planting can occur up to two weeks before normal. Row covers can also be used to extend the growing season in the fall and to overwinter



used to extend the growing season in the fall and to overwinter strawberries and nursery crops.

In 1990 and 1991, two sweet corn cultivars, 'Northern Vee' and 'Seneca Horizon' were planted with and without a floating row cover (Kimberly Farm Vegetable Cover). The cover was removed after seven to eight weeks.

The use of a floating covering on sweet corn increased it's height at removal in 1990, but not in 1991 (Table 7). Poor rainfall distribution and high winds in 1991 may have caused damage in conjunction with the covers. Both years, the use of a cover did not increase yields. The effect on the date of first pick varied with the year and cultivar. Using the cover reduced the days to harvest for 'Seneca Horizon' in 1990, but not in 1991. The opposite effect was seen for 'Northern Vee'. This trial will be repeated in 1992.

#### CUCUMBERS WITH PLASTIC MULCHES AND TUNNELS

Plastic mulches have been shown to increase soil temperature and moisture, reduce soil crusting and compaction, and reduce fertilizer leaching. Clear plastic mulches result in the greatest soil temperature increases, however, opaque films prevent weed growth.

Many researchers have reported increased early and/or total yields and reduced time to harvest for direct-seeded and transplanted vegetables using mulches. The use of plastic mulches is said to facilitate the production of warm-season crops such as tomatoes, peppers and sweet corn.

The use of plastic tunnels increases the daytime air temperature and nighttime air temperature following sunny days. Plastic tunnels are usually used in conjunction with a plastic mulch. Row covers over black plastic mulch increases the daytime and nighttime soil temperatures over that of black plastic mulch alone.

In 1991, the following treatments were compared on transplanted 'Dasher II' cucumbers:

- Control - bare soil, no tunnels
- Photodegradable black mulch, no tunnels
- IRT plastic mulch, no tunnels
- Photodegradable black mulch with tunnels
- IRT plastic mulch with tunnels.

This trial will continue in 1992 and 1993.



TABLE 1. Yields for selected raspberry cultivars.

Planting Year	Cultivar	Yield (t/ha)					Total
		1987	1988	1989	1990	1991	
1985	GU72	1.9	7.6	15.2	8.5	-----	33.3
	GU91	0.5	2.8	14.5	14.9	-----	32.6
	GU70	2.5	7.2	5.1	5.7	-----	20.5
	Boyne*	NA	NA	13.8	12.7	-----	NA
	Comet*	NA	NA	7.4	5.3	-----	NA
1987	GU62	-----	0.2	5.4	6.7	5.2	17.4
	OAC Regal (GU74)	-----	1.2	10.9	1.4	3.9	17.4
	OAC Regency (GU75)	-----	0.1	8.4	3.4	2.4	14.4
	Boyne	-----	0.0	6.1	3.9	2.6	12.6
	Comet	-----	0.4	4.6	1.4	2.6	9.0
	GU72	-----	0.2	4.6	2.7	1.0	8.5
	Algonquin (BC721-7)	-----	0.2	3.1	0.6	0.5	4.4
1988	Nova	-----	-----	0.4	1.8	1.9	4.1

\* Planted in 1984.

TABLE 2. Percent winter kill and fruiting cane height averaged over the picking years.

Planting Year	Cultivar	% Winter Kill				Average Cane	
		1988	1989	1990	1991	Average Height (cm)	
1985	Boyne	2	11	6	-----	6	132
	Comet	8	6	72	-----	29	111
	GU70	1	11	32	-----	15	110
	GU72	5	13	28	-----	15	120
	GU91	2	5	29	-----	12	102
1987	Algonquin (BC721-7)	0	13	70	25	27	68
	Boyne	0	5	13	8	7	81
	Comet	8	24	79	22	33	79
	GU62	13	9	9	15	12	81
	GU72	12	13	17	13	14	72
	OAC Regal (GU74)	0	3	13	5	5	107
	OAC Regency (GU75)	3	9	47	17	19	76
1988	Nova	NA	0	30	37	22	86

TABLE 3. Days to harvest, berry weight and quality for selected raspberry cultivars.

Planting Year	Cultivar	Days to Harvest (1=July 1)			Harvest Duration*	Berry Weight (g)	Average Total Quality**
		5%	50%	95%			
1985	Boyne	20	32	47	27	2.0	19.0
	Comet	24	36	54	30	2.2	26.0
	GU70	27	38	51	25	2.2	22.0
	GU72	23	33	47	24	1.9	21.0
	GU91	26	41	54	29	2.0	20.0
1987	Algonquin (BC721-7)	22	38	51	29	1.9	22.0
	Boyne	14	27	45	31	1.9	20.0
	Comet	26	35	50	24	2.5	25.0
	GU62	24	32	45	21	2.3	23.0
	GU72	24	32	46	23	1.7	21.5
	OAC Regal (GU74)	23	33	45	23	2.3	21.0
	OAC Regency (GU75)	23	35	53	30	2.2	23.0
1988	Nova	14	32	45	31	2.2	26.5

\* Days between 5 and 95% harvest.

\*\* Total of 1-5 quality ratings for color, firmness, brightness, meatiness, cohesion, regularity and skin strength.



TABLE 4. Marketable yields for selected strawberry cultivars.

Planting Year	Cultivar	Marketable Yield (t/ha)						Total
		1986	1987	1988	1989	1990	1991	
1985	Veestar	2.7	7.6	----	----	----	----	10.3
	Sparkle	1.0	5.6	----	----	----	----	6.6
	Redcoat	1.4	3.9	----	----	----	----	5.3
	Settler (V7236-2)	0.6	3.5	----	----	----	----	4.1
	Selkirk (V7210-5)	0.2	0.9	----	----	----	----	1.1
1987	Redcoat	----	----	2.5	3.8	----	----	6.3
	Governor Simcoe	----	----	1.8	1.7	----	----	3.5
	St. Williams (V7261-3)	----	----	0.1	3.0	----	----	3.1
	Scotland (V7251-1)	----	----	2.7	0.4	----	----	3.1
	Veestar	----	----	0.2	2.8	----	----	2.9
1989	OAC St. Clair (GU62E55)	----	----	----	----	21.8	1.1	23.0
	St. Williams (V7261-3)	----	----	----	----	11.8	0.7	12.5
	Veestar	----	----	----	----	0.1	2.7	2.8
	Redcoat	----	----	----	----	0.4	0.5	1.0

TABLE 5. Days to harvest, berry weight and quality for selected strawberry cultivars.

Planting Year	Cultivar	Days to Harvest (1=June 1)		Harvest Duration*	Berry Weight (g)	Average Total Quality**
		25%	95%			
1985	Selkirk (V7210-5)	27	41	14	3.7	20.0
	Veestar	28	43	15	3.7	18.5
	Settler (V7236-2)	31	41	10	5.5	18.0
	Redcoat	31	47	16	3.6	16.0
	Sparkle	35	48	13	3.2	17.0
1987	Veestar	38	45	7	3.0	11.5
	St. Williams (V7261-3)	40	48	8	5.1	17.5
	Redcoat	40	59	19	4.5	15.0
	Governor Simcoe	42	55	13	6.5	18.0
	Scotland (V7251-1)	48	60	12	5.5	18.0
1989	Veestar	13	39	27	5.1	26.5
	Redcoat	20	43	23	4.6	20.0
	OAC St. Clair (GU62E55)	35	51	16	9.2	20.5
	St. Williams (V7261-3)	39	53	14	5.1	21.0

\* Days between 25 and 95% harvest.

\*\* Total of 1-5 quality ratings for internal and external color, firmness, brightness and regularity.

TABLE 6. Extra Early and Early sweet corn cultivars planted in 1990 and 1991.\*

Year	Cultivar	Marketable Yield (doz/ha)	Date of 1st Pick (1=Aug. 1)	Harvest Duration (days)	Ear Length (cm)
1990	Buttervee	4304 bcd **	20 b	28 d	15.0 efg
	Earlivee	4349 bcd	18 cd	28 d	15.5 defg
	Earlivee II	5625 ab	20 b	29 d	15.6 def
	Norgold	6851 a	35 d	8 ab	17.0 bc
	Norsweet	4111 bcde	30 c	13 b	16.8 bcd
	Northern Vee	4183 bcde	16 ab	21 c	14.4 fg
	Polar Vee	3053 de	14 a	25 cd	14.1 g
	Spartan	3582 cde	20 b	20 c	15.9 cde
	Springdance	4952 bc	30 c	13 b	17.8 b
	Yukon	2693 e	37 d	6 a	22.7 a
1991	Buttervee	2601 a	12 a	9 a	17.7 bc
	Earlivee	1244 a	12 a	4 a	17.0 bc
	Earlivee II	2035 a	12 a	6 a	18.3 bc
	Norgold	2714 a	21 b	3 a	20.4 ab
	Norsweet	1611 a	19 b	3 a	16.7 c
	Northern Vee	1357 a	12 a	3 a	16.4 c
	Seneca Star	1640 a	21 b	3 a	18.5 bc
	Spartan	2149 a	14 b	5 a	15.5 c
	Springdance	3251 a	19 b	6 a	15.1 c
	Yukon	3675 a	19 b	8 a	23.5 a

\* Planted May 22, 1990 and May 21, 1991.

\*\* Means within a year and a column followed by the same letter are not significantly different (P 0.05) by Duncan's multiple range test.



TABLE 7. Early Bicolor and Sugar Enhanced Bicolor cultivars planted in 1990 and 1991. \*

Year	Cultivar	Marketable Yield (doz/ha)	Date of 1st Pick (1=Aug. 1)	Harvest Duration (days)	Ear Length (cm)
<u>Early Bicolors</u>					
1990	Burgundy Delight	3053 a **	32 a	11 b	16.0 c
	Classic Touch	1611 b	39 b	4 a	18.4 b
	Metis Horizon	2116 b	37 b	6 a	18.7 ab
	Early Gold 'n Silver	3342 a	32 a	11 b	19.2 a
1991	Classic Touch	2025 b	17 a	4 a	17.9 a
	Metis Horizon	4119 a	23 a	7 a	18.0 a
	Early Gold 'n Silver	2643 ab	22 a	4 a	18.9 a
	Quickie	1340 b	11 a	4 a	15.5 b
<u>Sugar Enhanced Bicolors</u>					
1990	Gold 'n Pearl	3582 b	35 b	6 a	17.0 c
	Speedy Sweet	4424 a	32 a	13 a	15.9 d
	Gemini	2068 d	37 b	6 a	18.0 ab
	Sparkle Sweet	1827 d	37 b	6 a	17.3 bc
	Kiss and Tell	2909 c	37 b	6 a	16.9 c
	Tri Sweet	2573 c	37 b	6 a	18.7 a
	Gold 'n Pearl	3204 a	28 a	5 a	18.9 a
	Speedy Sweet	1666 b	28 a	1 a	18.1 a
	Kiss and Tell	3941 a	30 a	4 a	17.7 a
	Tri Sweet	3332 a	28 a	7 a	19.7 a
	Peaches 'n Cream Early	3012 a	28 a	4 a	18.3 a
	Seneca Dawn	3268 a	28 a	4 a	18.9 a

\* Early Bicolors planted May 22, 1990 and May 21, 1991; Sugar Enhanced Bicolors planted May 28, 1990 and May 30, 1991.

\*\* Means within a year and a column followed by the same letter are not significantly different (P 0.05) by Duncan's multiple range test.

TABLE 8. Sugar Enhanced sweet corn cultivars planted in 1990 and 1991. \*

Year	Cultivar	Marketable Yield (doz/ha)	Date of 1st Pick (1=Aug. 1)	Harvest Duration (days)	Ear Length (cm)
1990	Maple Sweet	4953 ab **	32 b	11 b	17.7 b
	Precocious	5650 a	28 a	15 c	15.7 c
	Sugar Buns	4448 b	36 c	7 a	17.7 b
	Tuxedo	3582 c	36 c	7 a	20.5 a
1991	Maple Sweet	1730 a	25 a	7 a	16.5 a
	Sugar Buns	993 a	33 a	1 a	16.5 a
	Tuxedo	1986 a	33 a	3 a	16.7 a

\* Planted May 28, 1990 and May 30, 1991.

\*\* Means within a year and a column followed by the same letter are not significantly different (P 0.05) by Duncan's multiple range test.

TABLE 9. Super Sweet sweet corn cultivars planted in 1990 and 1991. \*

Year	Cultivar	Marketable Yield (doz/ha)	Date of 1st Pick (1=Aug. 1)	Harvest Duration (days)	Ear Length (cm)
1990	Extra Early Super Sweet	4472 a **	35 a	8 b	19.8 b
	Northern Super Sweet	4304 a	35 a	8 b	20.0 b
	Sweet Desire	3270 b	41 b	3 a	20.3 b
	Sweetie	2813 b	37 ab	6 ab	21.0 a
1991	Extra Early Super Sweet	2750 a	35 a	1 a	18.4 b
	Northern Super Sweet	2429 a	35 a	1 a	19.7 a
	Polar Super Sweet	1922 b	35 a	1 a	18.0 b
	Sweet Desire	2563 a	35 a	1 a	19.5 a

\* Planted June 4, 1990 and June 6, 1991.

\*\* Means within a year and a column followed by the same letter are not significantly different (P 0.05) by Duncan's multiple range test.



TABLE 10. The effects of floating row covers on sweet corn yield and earliness.

Year	Cultivar	Treatment	Marketable Yield (doz/ha)	Date of 1st Pick (1=Aug. 1)
1990	Northern Vee	Control	5193	8 b
		Covered	4873	8 b
	Seneca Horizon	Control	5353	17 d
		Covered	5578	10 bc
1991	Northern Vee	Control	1730	7 b
		Covered	1098	2 a
	Seneca Horizon	Control	1581	14 cd
		Covered	1581	12 bc
<u>Significance (1)</u>				
Year			**	NS
Treatment			NS	**
Year x Treatment			NS	NS
Cultivar			NS	**
Year x Cultivar			NS	NS
Treatment x Cultivar			NS	NS
Year x Treatment x Cultivar			NS	*

(1) \*\* - highly significant; \* - significant; NS - not significant.

Means within a column followed by the same letter are not significantly different (P 0.05) by Duncan's multiple range test.

ONE ROW TO ONE ACRE  
by Barbara MacLean  
Horticultural Crop Advisor

Chairman, guests, and delegates: It is my pleasure to speak to you today on increasing your acreage. There are a number of ways to expand your existing garden. This does not require a large amount of capital expense or expertise. It does require more planning and organization. The land base is essential. You may require additional labour for planting, harvesting, or marketing which can be an educational experience for both you and your employee(s).

I will begin by explaining equipment choices you may prefer in order to make more valued use of your time. I will cover soil preparation and keeping your soil healthy and productive. Then comes cropping decisions which are directly affected by soil management and markets. The management section includes what takes place between planting and harvesting, much of what you do presently. And finally, I will briefly cover marketing concerns and ideas, and decisions that will be made as a result of your springtime planning.

## EQUIPMENT

- \* BASIC TOOLS
- \* CULTIVATORS
- \* FERTILIZER SPREADERS
- \* GREENHOUSES
- \* SEEDERS
- \* SPRAYERS
- \* ANIMAL/BIRD DETERRENTS
- \* CARTS
- \* VEHICLES



## SOIL PREPARATION

SOIL TESTING

ORGANIC MATTER

COMPOSTING

GREEN MANURES

SOIL PREPARATION

PLAN CROP SITES

ROTATION

COVER CROPS

FERTILIZATION

WEED CONTROL

## CROPPING DECISIONS

- CROP SPECIALTIES
- CROP CHOICES
- CROP LOCATIONS
- COMPANION PLANTING
- QUALITY SEED
- SEED QUANTITY
- SCHEDULED PLANTINGS
- PROPER SPACINGS
- THINNING PLANTINGS
- PERENNIAL CROPS
- HARVEST TECHNIQUES



# MANAGEMENT

CULTIVATION

FERTILITY

IRRIGATION

FROST PROTECTION

SEASON EXTENSIONS

CLEAN FIELD

PROPER PRUNING

IDENTIFICATION REFERENCE MANUAL

INSECT CYCLES

DISEASE CYCLES

WEED CONTROL

CONSTANT CROP MONITORING

TIMELY HARVESTING

## MARKETING

- + COOLING AREA
- + STORAGE AREA
- + PREPARATION AREA
- + ADDITIONAL LABOUR
- + KNOW MARKETS
- + KNOW CUSTOMERS
- + CLEAN PRODUCTS
- + PACKAGE WELL
- + VARY QUANTITIES
- + PREPACKAGE VS WEIGHING ON SITE
- + PRICE CLEARLY
- + BAGS/BASKETS



## MEET A CUSTOMER...

**Gordon Mitchell, O.M.A.F. Marketing Specialist and  
Ann Board, Treasurer, N.O.F.M.A.**

This afternoon, Ann Board and myself would like to present to you our ideas on how to "Meet a Customer" at your farmers' markets.

First of all, let me introduce Ann Board; she lives in Restoule and has been a vendor at the Powassan Farmers' Market for five years, and is the Treasurer of the Northern Ontario Farmers' Market Association. Ann has a lot of experience in vending at farmers' markets and craft shows and feels very strongly about doing a professional job in meeting customers at each market.

I am Gord Mitchell, Marketing Specialist for Northern Ontario at the present time, and also Agricultural Representative in Muskoka for the Ontario Ministry of Agriculture and Food, working from the Huntsville office. My interest in the farmers' markets and marketing has been ongoing for the last eight years. I believe that being a vendor is a new experience for many of and there are techniques to be learned on how to be a "top-notch" vendor to merchandise your products successfully to consumers at your farmers' market.

### Who is Your Customer?

The title of our presentation today is called "Meet a Customer". Our question to you is "who are your customers?" Are they local towns people, middle-aged, senior citizens, summer visitors or people passing through town? We would think from past experience that the majority of your customers are local people wishing to support a local industry, but you will also have significant percentage who are summer visitors or people just seeing your market signs and stopping in to see what's happening!

### Why are the Consumers Choosing to Come to the Farmers' Market?

We believe that they are there to buy fresh, local produce, to meet their friends, to buy directly from the producer, to enjoy the atmosphere, to get canning supplies for the fall, or they might just be inquisitive to see what's happening!

### The Farmers' Market

Farmers' markets are unique selling and marketing institutions that are located throughout our country. They are located inside buildings in towns, cities, villages, in fields, at the fair grounds; or in parking lots; or down any street; in almost as many locations as there are villages and towns where they are located. Every situation is unique to the vendors and the municipality in which they are located.



### **"Let's Go to the Market"**

The consumer has decided... "let's go to the market". The reason they have decided to do that is because they have been made aware through advertisements by the market committee of where, when, why and how long the market will be open, and what there is to buy and do. This is done in newspaper advertisements, radio and television ads, and with highway billboard signs. The advertisements and signs locate the market and give direction to the consumer on where to turn to enter the market and will point the direction as to where to park your car and enter the market. All of the advertising and signage should be of professional quality. It should be neat and be clean in appearance with the lettering easy to read, giving the message to the customer the first time they see it.

### **First Impression of the Farmers' Market**

When the consumer is standing, walking, or looking at the farmers' market for the very first time they should see a market that is arranged in an orderly manner where the vendors are located in a continuous flow pattern without any dead ends; with lots of room for the consumers to walk easily between vendors and with the whole market set up in a neat, orderly, and clean manner that is appealing to the eye and that will invite the consumer to enter. There will be colour at your market - from the tent, or the canopies of the vendors or the painted permanent stall facilities at your market. These colours should be bright giving the consumer a sense of gaiety, festive activities, and fun times in store for them.

As the customer is entering the booth area they will look generally at the total market and then they will zero in on the individual stalls where you vendors are waiting to serve. As the customer approaches your stand you should have displayed your name or your farm name or your selling name on a neat sign that is easily read; this will be a trade mark that the consumer can relate to when they want to find your stall or visit you another time. Your stall area should be neat, it should be well painted if there are paintable surfaces with no garbage around the front. The display area on your stand is the most visible if you use different heights to show your products. You may set up your stall so that there is a back drop of displays at the back, or arrange it in a u-shape so that customers can walk into your display choosing and selecting the products they wish to look at, and eventually buy; there are many ways of setting up your display. The items need to be priced so that the consumer can compare prices as they are used to in every other selling location. Try and group like items and be on hand to assist the consumer if they have any questions.

The back of your stall can be fitted with color photographs that are 8" x 10" or larger to show the consumer the processes that you use to prepare your product prior to coming to the market. These will be of interest to the consumer and will show that you are a producer as well as a vendor.



### **Vendor Responsibility**

Being a "top-notch" vendor is more than just appearing on sale day and selling your product! As a producer and vendor, you are the expert of the products which you are selling. Become aware of the how the products are produced, of the materials used, and of the nutritional details that make up your product if it is a food. It is also helpful to know how to cook and prepare your foods alone or in combination with other foods to make a pleasing meal for the consumer. You may wish to give out the prepared recipes that are available through Foodland Ontario or other sources that you have tried and found to be good. The consumer often is looking for new ways of using a food product. It is advisable to become a member of the commodity group of which you are selling the product of. For example, if you are selling honey, it would be a good idea to become a member of the Beekeepers Association to learn about the background in beekeeping, the new and improved ways of extracting the honey and pollen from the hives, and possible marketing ideas that are shared in those associations. A vendor is wise to get to know what other products are being marketed and sold in the market as a whole so that they can suggest and direct consumers to other vendors to buy a complimentary product to go with their just recently purchased item from their own table. Let's say you just sold candles and they were for a gift - it would be a good idea to suggest to the consumer that just around the corner a vendor is selling wood products and very likely they have candlesticks or there may be a potter in the market and they may have candlesticks to go with your candles. This makes for a very nice gift combination. If you are a vegetable vendor and were sold out of sweet corn, then you could recommend to the consumer where they could purchase similar corn in the market that they would find pleasing to taste and even the variety of their choice. This same kind of thing is done at the retail stores in town, and likely you as vendors have been treated in a similar way by sales people in the store situation and they have tried to help you find things that you are interested in buying if they were not available in that store.

Another responsibility of each vendor is to be familiar with the business and attractions that are available in the village or surrounding area, and be able to suggest to people visiting the market for the first time or happen to be summer visitors of places where they could spend the afternoon or take in an activity that would be of interest to them. Customers may want to know where the bank or drugstore is and vendors should be able to direct consumers to these facilities.

### **Preparation for Market**

Vendors who grow produce and wash vegetables should contact the local health unit and have their water tested to see if it safe for drinking, and safe for preparing and washing vegetables.

Vegetable vendors will select, dig, wash and prepare the vegetables for market; they sell only the top quality vegetables, of uniform consistency; with no diseases, rotten spots or insects that are transported to the market. These vegetables must be of the best quality that you can produce. If not, the consumers will reject and not buy and the market will not have return customers. Compare your product to those that are available at the supermarket for comparison. Be sure to separate or grade the vegetables out into proper sizes, for example, with potatoes grade the small



ones from the medium and large ones; then sell them individually by size. In pricing vegetables the most uniform, the ripest, the most consistent according to the variety and type can be offered for the top quality, price. The ones that are of different sizes and immature will not measure up to the first line product; they must be priced accordingly. Similar to the supermarket, you'll have top quality produce, but you should also have a reduced rack, if you insist on bringing everything to the market that you grow.

Vendors at the craft tables must be aware of the colours that are in fashion for the year. For satisfaction of knitting, sewing, and preparing of these products you must stay in fashion or stay with what is "in" or you will be dissatisfied. Workmanship must be of a very excellent quality for the consumer to choose your crafts. There are many people selling crafts, knit and sewn goods on the market today, and consumers have a wide choice to choose from when purchasing quality crafts.

Crafts that are "hot" this year may not be next year, and be aware of what's "in" and what's not. For example, items with ducks on them are not "in", but cows are. That's the trend so try and keep up with the trend leaders; have a look at various craft magazines that are on the news stand and what's new for 1992 and go for it!

When setting up your display think about the colours you have to work with and the type of articles. Colours are really important to separate the vegetables. Green lettuce, red tomatoes, or orange carrots displayed separately make identification easy by the consumer when they are deciding what they want to buy.

### **Pricing**

All items should be priced. Use the price cards provided, for example, Foodland Ontario, and take some care in the printing of the words and numbers of the price so that they are easily read. All consumers, even yourselves, like to comparison-shop and really don't like asking "how much is this worth?"

### **Vendor Meets Consumer**

The first impression and cheery hello to a consumer is your opportunity as a vendor to win the consumer over, provide them with as much information about their product, your market, and your area as possible, and make a sale. It is important to smile at your consumer and be cheerful when you say, "good morning." Be sure to make eye contact with the consumer, and continue the conversation providing them with the information that they ask for and make them feel welcome at your display area.



It is important as a vendor to be dressed neat and clean. Men should be clean shaven and if the market has aprons or t-shirts ensuring that they are clean and worn proudly. Wear a name tag with your first name only in large, easily read letters. It is important to wear appropriate clothing for the weather, for example, on cool mornings be sure to have sweaters, turtlenecks and jackets and also have a change of clothes that you will look refreshed in the middle of the day when it is hot. It is also advisable to wear comfortable, well-supporting footwear so that you can be on your feet for the duration of the market and not be uncomfortable serving your customers.

If you are not a morning person, or have been out partying all night you should not work at the front of the stall but do some other task; as it is important to have a cheery person to greet customers! We can't expect our customers to understand our activities and that we are feeling up to life in greeting them. You must always have a cheery smile and hello and be ready to "Meet the Customer".

There are some do's and don'ts as to what to do in greeting or showing people that you are interested in them and that you are glad they are at your display. The handouts attached on Boothmanship and Five Steps of Handling Customers are excellent resources for you to refer to.

### In Summary

Ann and I recommend to each farmers market, to include this discussion in their program update for their vendor meetings this spring because you can see that the "Meet a Customer" process is a total market effort. You have built a foundation of farmers' markets in the last five years - now we have to fine-tune our vendors in their skills to meet the most important asset that every market - the CONSUMER!

Remember, your farmer market is made up of a group of individuals who are unique because you are producers and retailers combined. You love things like: the hard needed to get ready for market day, to educate consumers about your production techniques, to share all kinds of interesting information about your local area, and to help them enjoy themselves.

Farmers markets are an asset to every municipality! They bring out memories and romance to consumers - remembering their younger days and experiences. Personally made products, service, hospitality and entertainment are the key elements in each farmers market which sets them apart from other retail events. Markets are filled with color too; both in the people and their personalities as well as the market environment. Entertainment by musical instruments, the smell of fried onions, the ring of horse bells from the hay ride and the buzz of consumers and vendors interacting makes farmers' markets a unique and entertaining experience!



# MY EXPERIENCE IN GROWING A 100 BUSHEL PLUS PER ACRE BARLEY CROP

Maurice V. Beaudry, Cache Bay

For the last two summers, we have been involved in the Barley Management Club. With the help of Daniel Tasse, Claude Peloquin (Agricultural Representative), and New Liskeard College, we have studied a little more what has been proven to maximize yield of barley.

In fall 1989, we plowed a field that had been in alfalfa for the past 5 years. It had been manured with liquid manure in spring with 2000 gallons/acre and after first cut with 2000 gallons/acre. The soil test showed a reserve of P-13, K-110, PH-7.3 and Mag 484.

In spring of 1990, two passes with a cultivator were performed and seeded April 27 using OAC Kippen. We were using a 510 I.H. seed drill purchased the same spring with 24 x 6" disc spacing. When the barley emerged, we noticed that the rows in the tractor tire marks emerged first and the rest, four to five days later. These differences in emergence carried on all through the growing season. When Daniel came to visit the barley was four to five inches high, he commented that it had been seeded too deeply, at 2 1/2" to 2" and in the tractor marks were correct at 3/4".

Having had heavy rains, warm weather in the early season, the barley was affected with leaf disease and in July quackgrass smothered the barley crop; the yield in 1990 was 1.1 ton/acre.

In the fall of 1990, we sprayed the entire field with Roundup at 1 litre per acre and applied 2000 gallons/acre liquid manure and plowed Sept 17/90. The Roundup had worked very well with lots of brown off.

In the spring of 1991, we made one pass with the cultivator on April 25 and we took time to walk the field and soil test at 6" and 24" to determine amount of N. in soil. The barley Sabina was used and seed drill calibrated for 96 lbs/acre (with a Flexi-Coil Squalle #4600) as well as fertilizer at 175 lb/acre of 13-34-25. Also the seed drill was equipped with track eliminators so as to level field to improve precision in planting at no more than 3/4" depth.

With the concept of sustainable farming in mind, we also added 2 lb/acre of alsike clover. On May 24, we sprayed with M.C.P.A. 300 for broadleaf weed control. As most of you remember the summer of 91 was very dry having received 20 mm rain on May 16 and 45 mm on May 26 and 41 mm in July 29, very little rain in June. For this reason the alsike clover did not grow very well.



The soil test from spring showed that there was a reserve of N-122, P-14, K-146, PH-6.8 and Mag 500. So no nitrogen was added to this barley crop. In early June, a visit with Daniel revealed that no disease was evident, possibly because of warm dry weather.

The barley grew very well in June and July and looked very good prior to harvest which was done August 6. At harvest, Claude was called to measure and weigh to get information for the club. We were surprised that the yield was very high, all the bins were full and we had to clean up other areas to store barley. Yield result was officially 106 bushel/acre. Test weight was 50 lb/bushel from combine, 54 lbs/bushel when barley was cleaned with harvest moisture of 14%.

This is a summary of my past experience in the Barley Management Club. Thanks to Daniel Tasse, Claude Peloquin, and New Liskeard College and the North Eastern Soil and Crop Improvement Association for their time and resources in making these farm tests possible.

Lessons learned from this experience on my part, are that to achieve these high yields, one must prepare the soil, N.P.K. soil fertility, and not to over cultivate, maybe just one pass is enough. Plant seed at a depth of no more than 3/4" and plant as early as possible. The control of weeds is very important, especially quackgrass. One note on fertility; if your soils are rich, do not add more fertilizer than needed, it may limit yields.

Conclusion: As we are the Stewards of the soil, we are responsible for maintaining fertility, tilth of the soil, and to make an effort to study soil structure, and to take time to walk the fields to examine and question what is going on or happening. As you can see, maybe you, the farmer, are already doing these things as mentioned above and very well know that there are other forces that may limit yields. Those are one's that we have limited control of, or no control: such as weather, rain, sunlight, and diseases. Therefore, I confess that God has the power to reward us in our tilling of the soil by determining the yield. Matthew 13-8 say's "But seeds fell into good ground and brought forth fruit, some an hundredfold, some sixtyfold, some thirtyfold". May we give thanks to Him who rewards us as Stewards of soil whether it is 100 bushel, 60 bushel or 30 bushel. Thank you for coming and sharing our experience in growing 100 plus bushels barley in 1991.

May 1992 provide you fellow farmers with the opportunity to reach these high barley yields.



John Heard  
Agronomy Section  
Northwestern Ontario - N.L.C.A.T.

Purchased crop inputs can dramatically increase barley yields - but when do the costs of the input exceed the value of grain produced? What inputs will return the most dollars per dollar spent?

In response to this question, we initiated studies in Northwestern Ontario to assess the relative importance of various purchased inputs involved in barley production.

The study commences with a low-cost, low input production system using common barley seed at a 2 bu/acre seeding rate without agricultural chemicals. Additional inputs were added one at a time to the previous treatment until all factors are present in Treatment 11.

Treatment 1 :	common seed @ 2 bu/acre, no agricultural chemicals
Treatment 2 :	#1 + broadleaf herbicide (2,4-D)
Treatment 3 :	#2 + starter fertilizer (8-26-26 @ 135 lbs/acre)
Treatment 4 :	#3 + OMAF recommendation of nitrogen fertilizer
Treatment 5 :	#4 + OMAF recommendation of phosphorous fertilizer according to soil test
Treatment 6 :	#5, but switch to certified, treated, Chapais barley
Treatment 7 :	#6, but increase seeding rate to 3.3 bu/acre
Treatment 8 :	#7, + Tilt fungicide
Treatment 9 :	#8, + additional nitrogen fertilizer
Treatment 10 :	#9, with sulphur, a nutrient sometimes deficient in N.W. Ontario
Treatment 11 :	#10, + very high rate of potash, believed to reduce cereal root rot and increase yields in the west

All fertilizer treatments were broadcast and worked in before seeding.

The experiment was conducted in Thunder Bay in 1990 and 1991, and in Emo in 1991. Detailed site descriptions are in Table 1.

### Yield Response

Yields are reported for each site in Table 2. Emo yields were low and variable due to late planting and a very wet June and July (40% more rainfall than normal).

Three factors contributed to higher yields at all 3 sites. Switching to superior seed quality and genetics with certified Chapais barley (#6), increased yields by 12-26 bu/acre, and was the only treatment significantly higher in yield than the previous one. Moving to this short-strawed variety also removed the need for a growth regulator to shorten the crop and prevent lodging. Adding the first application of general fertilizer (#3) increased yields by 5-14 bu/acre, and applying the recommended rate of phosphorus (#5) increased yields by 3-13 bu/acre. This response to phosphorus might have been even greater with proper placement. Recent studies at Thunder Bay indicate deep banding or seed placement of phosphorus, increases yields 10% over broadcast applications.

Use of a broadleaf herbicide (#2) increased Thunder Bay yields by 5-7 bu/acre. Surprisingly, additional nitrogen (#4 and #9) did not increase yields as one would expect. But, soil test results indicate adequate soil nitrogen was already available for the crop (Table 1). Increased seeding rates (#7) generally had a negative



effect on yield. Tilt fungicide (#8) increased Thunder Bay yields by 3-12 bu/acre by controlling moderate levels of net blotch. The only factor producing significantly greater yield than the switch to Chapais (#6), was the application of sulphur (#10) in 1991 in Thunder Bay on a low testing soil (see Table 1). The high dose of potash (#11) reduced yields by an average of 3 bu/acre.

### Cost Analysis

Input costs were priced at Thunder Bay, and machinery operation costs (spreading fertilizer and spraying) are from the 1990 Thunder Bay Barley Management Club. The additional cost of each factor is listed in Table 3. The return per dollar spent on inputs is calculated using barley at \$2.18/bu. (\$100/T), and data from the Thunder Bay sites. Economists figure that a \$3.00 return for each \$1.00 spent is required for a good investment.

In this study, the best return per dollar invested is for certified Chapais seed, and for broadleaf weed control. Inputs returning close to the value of their costs were basic fertilizer (#3), adequate phosphorus (#5) and Tilt fungicide (#8). Other inputs cost more than they returned, especially those associated with yield reductions.

### Summary

Those factors identified as the most important factors in barley production were:

- 1) Variety selection and seed quality.
- 2) Soil testing. The soil test indicated which nutrients were most likely to produce economical yield (phosphorus) and those nutrients where excess application was unwarranted and costly (potassium, nitrogen and sulphur).
- 3) Weed Control
- 4) Disease Control, but only when yield potential is high and diseases are threatening.

P.S. This study was based on a similar barley study by Bob Sheard (OAC) in 1986. He identified the greatest contributors to yield as being early seeding, nitrogen rate, variety selection, use of fungicide and plant growth regulators. These extension type studies do not fine-tune the production system, but do help to identify those factors making the largest contributions. Detailed research trials usually only study 1-2 factors at 2-5 levels in order to provide specific answers.

TABLE 1. DESCRIPTION OF EXPERIMENTAL SITES.

	SITE A TBAY 90	SITE B TBAY 91	SITE C EMO 91
PLANTING DATE	MAY 31	MAY 25	MAY 28
PREVIOUS CROP	OLD SOD	BARLEY	OLD SOD
SOIL TESTS			
P ppm	2 VL	8 L	10 M
K ppm	170 H	176 H	274 E
pH	6.8	5.8	6.5
SULPHUR kg/ha#	24	14*	23*
NITROGEN kg/ha#	154	98*	81*
# Sulphur and nitrogen samples are from the 0-24" depth.			
* Sampled in adjacent experiments.			



TABLE 2. BARLEY YIELD RESPONSE TO INCREASING CROP INPUTS.

TREATMENT	SITE A TBAY 90	SITE B TBAY 91	SITE C EMO 91
	-----BU/AC-----		
1 COMMON SEED	34 e*	58 d	8 d
2 + 2,4-D	39 de	65 cd	8 d
3 + 8-26-26	53 cde	70 cd	19 bcd
4 + 34-0-0	58 cd	68 cd	17 cd
5 + 0-46-0	71 bc	76 c	20 abcd
6 CERTIFIED CHAPAIS	97 a	94 b	32 ab
7 3.3 bu SEED/AC	89 ab	95 b	27 abc
8 + TILT FUNGICIDE	101 a	98 ab	25 abc
9 + EXTRA NITROGEN	106 a	98 ab	23 abc
10 + SULPHUR	98 a	111 a	31 abc
11 + EXTRA POTASH	94 a	102 ab	34 a

\* Means followed by the same letter within each column are not significantly different at the 0.05 probability level as determined by Duncan's multiple range test.

TABLE 3. ECONOMIC ANALYSIS OF ADDITIONAL FARM INPUTS  
THUNDER BAY SITES 1990-91.

TREATMENT	ADDITIONAL COST OF INPUT	RETURN PER \$ SPENT ON INPUT **
	-----\$-----	
1 COMMON SEED	-	-
2 + 2,4-D	4.10	3.30
3 + 8-26-26	25.52	0.81
4 + 34-0-0	22.98	0.09
5 + 0-46-0	15.52 (31.04)*	1.03
6 CERTIFIED CHAPPAIS	8.91	5.30
7 3.3 bu SEED/AC	12.81	(0.68)#
8 + TILT FUNGICIDE	17.75	0.98
9 + EXTRA NITROGEN	17.24	0.25
10 + SULPHUR	11.27	0.48
11 + EXTRA POTASH	50.39	(0.45)#

\* 2 times the amount of phosphorus was applied to the VL testing site in 1990.

\*\* Barley is valued @ \$2.18/bu or \$100/T.

# Indicates a yield reduction with this input.



## MARKETING WITH TEM-GRAIN

D. H. Mingle, Manager  
Tem-Grain, Earlton

Welcome ladies and gentlemen. I would like to introduce you to Tem-Grain, Temiskaming Grain Marketing Co-operative Inc. With a name of this length, it is easy to see why we choose to call our co-operative Tem-Grain. I will be showing a brief tape made for Town and Country that you may or may not have seen on television. For those of you who are not familiar with the facility it will give a brief description of the origin and purpose of the elevator. I will endeavour to fill in more detail on the Co-op after the tape.

As mentioned in the film this elevator was in the planning stage for approximately 15 years. It took the effort of the Temiskaming Grain Growers Association and members of the elected delegates of UCO Earlton and New Liskeard Co-operatives to finally turn years of planning into reality. These individuals gave hundreds of hours of their time over four years for an elevator they believe will help the long term success of farmers in Temiskaming. The responsibility for its success now lies with a formal Board of Directors and staff. Tem-Grain is a true co-operative and offers its members a facility with a 120,000 dry bushel storage capacity, a Omnium model soc-6 dryer with approximately 1500 bushels per hour capacity, our cleaner is a Marot. The Co-op also has a 80 foot 100 tonne scale. Membership in Tem-Grain requires the purchase of five, soon to be six common shares valued at \$100.00 each. Our members will be receiving discounts for services in the upcoming cropping year, but as a public elevator, we are open to both member and non-member business.

What have we been able to accomplish in our first six months of existence? As of the end of January, we have marketing sales of just over \$1,000,000. This is comprised of approximately 2500 tonne of canola, 1230 tonne of barley, 410 tonne of oats and other miscellaneous commodities. We have now shipped over 3000 tonne of canola. We have completed sales to Quebec, Algoma, Manitoulin, Verner, Barrie, Peterborough, Sunderland and Madoc. We also have had limited sales in Temiskaming. We are in contact with brokers from Windsor to Ottawa in an effort to source markets for our grain. We continue to search for speciality markets and are now negotiating with a potential 1000 tonne contract for soup. It is also our intent to utilize the Winnipeg and Chicago markets to take advantage of forward contract pricing and hedging opportunities. It is our belief that the use of future market contracts will be essential to maintain sales and more importantly, profitability for the producer and for Tem-Grain. Opportunity for use of forward pricing offers real potential especially in the marketing of canola.



In conjunction with the Temiskaming Grain Growers Association, Tem-Grain managed the Advanced Payment for Crops Act for Temiskaming. The APCA allows farmers to receive an interest free advance payment for their grain. This allows bills to be paid and an opportunity for the producer to market grain when he believes it is to his best price advantage.

Tem-Grain is working towards having a marketing pool in place for this years grain crop. The pool, created through the APCMA, Agricultural Products Cooperative Marketing Act, would provide benefits for the producer and the elevator. Similar to the Ontario Wheat Producers Marketing Board, the APCMA would provide an advance payment to the producer, who places his grain into the pool. Grain placed into the pool comes under the discretion and ownership of the pool to market at the best possible price. The pooled grain would provide the elevator with a supply of grain to establish and maintain markets. The profits from the grain sold remains in the pool until all grain is marketed or surplus profits are such that disbursement is recommended. The program guarantees a minimum price for grain to the producer and an operating return to off set the elevators cost to a predetermined maximum. The individual producer shares in both the low and high prices through out the season and is paid on the average price for grain sold. The elevator has a fairly consistent source of grain with limited risk. This program can tie into APCA very nicely and one can be used to compliment the other. All the above marketing options are available through Tem-Grain.

APCA was not used in 1991 for canola. There is a chance that it will be part of the 1992 program. Through established programs, producers can future contract, or cash price their canola seed. Other options available include basis contracting or advance payments amounting to 75 percent of the current price with the final price to be determined at a later date by the producer. As with grains the option exists to store the seed and market later is available. These programs to do not require anything special to utilize.

Other possibilities exist with the use of the Winnipeg or Chicago Exchange Markets. Options include future contracting, hedging, buying or selling put and call options on the market. Any involvement with the Exchanges require a broker. During a recent course I attended, it was stressed that it only took three things to be successful in the market:

1. A well defined set of objectives for your business or crop.
2. The discipline to follow this written plan of action.
3. A good broker who will provide you with good information and mostly one who will follow your instructions.



When dealing in the market there is certain terms and restrictions that you will encounter. I would like to take a few minutes to briefly touch on some of these terms.

**Hedgers:** People who produce, process or use commodities and want to reduce their price risk or establish prices for commodities they will trade in the future. This would be the position taken by Tem-Grain and most producers.

**Speculators:** People who attempt to profit by forecasting price changes.

**Futures Contracts:** Contracts traded on organized futures exchange which specifies quality standards, delivery specifications, delivery locations, etc. Trade occurs for various future delivery months. Contract exchanges are abbreviated as follows: CBOT-Chicago Board of Trade; CME-Chicago Mercantile Exchange; MIDAM-Mid America Exchange (in Chicago); KC-Kansas City Exchange (hard winter wheat); MINN-Minneapolis Exchange (spring wheat); NY-New York Commodity Exchange and Winnipeg Commodity Exchange (canola). Commodity contract sizes varies with the exchange with which you are trading. Example, soybean meal CBOT 100 tons, MIDAM 20 tons. Due to the size of contracts, risk factor and potential margin calls are not for everyone. Future contracts are generally paper transactions as delivery of product is based on market location. (ie Chicago or Winnipeg)

**Exchange member:** Firm that owns a "seat" or the right to trade on an organized futures exchange.

**Fundamentals:** The supply and demand forces which ultimately determine the direction of price movement and the level of price. An example of the fundamental supply and demand effect on the market is the increase in wheat futures. With stocks the lowest they have been in 15 years, opportunity to sell to Russia and India and planting in the USA down 1.85 million acres to expected acreage, the market has reacted with steady price increases.

**Technicals:** Chart and related considerations used by traders to predict the directions of price movement. "Technical analysis" is an approach to the market which relies on the belief that the best information on where the market is going is the past history of the price itself.

**Bullish:** The belief that the market will go to higher price levels.

**Bearish:** The belief that the market will go to lower price levels.



**Volume:** The number of contracts traded in a particular trading session. Volume data are recorded for each futures month traded, but the reference to trading volume usually refers to the volume of trade in all the months being traded.

**Open Interest:** The total number of contracts which are outstanding and have not been offset by either delivery of an opposite buy-sell transaction.

**Overbought (sold):** An expression used when there is belief the market will not go higher (lower) because almost every trader interested in the market has already bought (sold).

**Margin requirement:** Monies which must be on deposit with the broker before futures can be sold.

**Long:** Refers to a "buy" position in the market - to buy is to "go long".

**Short:** Refers to a "sell" position in the market - to sell is to "go short".

**Commission:** Charges from brokerage firm to complete a round turn, and will vary across brokerage firms.

**Basis:** Difference between cash and futures. Calculated as cash minus futures, needs to be defined for a particular futures month and for a particular market area. In the case of Tem-Grain and canola, our basis pricing includes freight to the final destination.

**Limit move:** Largest move allowed, whether up or down, from the closing price of the previous day. Limit moves are:

Corn	\$0.10
Soybeans	\$0.30
Wheat	\$0.20
Hogs	\$1.50
Cattle (live and feeder)	\$1.50
Pork bellies	\$2.00

**Resistance area:** Area the market is expected to encounter resistance to higher prices.

**Support area:** Area in which the market is expected to encounter support against lower prices.

An example of a resistance area has been canola. The market had problems forcing March pricing over the \$270 range. In early February there was two consecutive market closings over \$270. The \$270 former resistance or price barrier is now termed a support area, or a price that will require a significant change in market information to drop below.



Put Options: The right, but not the obligation, to a short position in futures.

Call Options: The right, but not the obligation, to a long position in futures.

Strike Place: Designated price levels for which put and call options are traded.

These are some of the terms used in market trading. All these terms can be confusing unless one is dealing in the market on a regular basis and again, working the market requires careful planning and considerations and should be done in conjunction with the support of your banker and a reputable broker. Tem-Grain staff are available to help keep you informed on current market conditions. We are also able to future contract canola seed. Dealing with an exchange market can present some risks but with a well thought out plan, that you follow, the risk can be minimized.

Tem-Grain has and will continue to help producers in Temiskaming. We will focus on serving our membership but I am certain we are also supporting those producers who state, "There is no need for an elevator in Temiskaming". How do we help these people? Tem-Grain is helping the non believers by marketing local grain, establishing a degree of consistent quality for the area, accurate grades and weights, establishing prices for off farm grain that influence other buyers quotes, opening and establishing new markets and therefore a opportunity for additional grain sales. Tem-Grain is not the answer for depressed grain prices. Tem-Grain is not a substitute for good farm management. Tem-Grain cannot guarantee good growing and harvest conditions. Tem-Grain is an additional tool to help producers manage the marketing of their crops and provide them with current marketing information and options.

I hope that this does not answer all your questions about Tem-Grain but has developed your interest to investigate and question as to what we might be able to do for you!



## THE CANADIAN BEEF INDUSTRY

Anne Dunford, Market Analyst  
Canadian Cattlemen's Association

The margin squeeze in 1991 intensified for most of those involved in the beef industry. Most margin operators, be it a feedlot or backgrounder, have experienced narrow to negative margins this past year.

### 1991 IN REVIEW

1991 was not a year to remember for feedlot operators. The first half of the year saw Ontario prices similar to 1990 (about \$88-90 on steers) but quickly lost \$10/cwt. by late summer. Prices from the fall and early winter had difficulty averaging much over \$75 and at times had trouble holding \$72. Compared to 1990 when fall averages on slaughter cattle were over \$90, this fall was considered a disaster. U.S. steer prices led the price decline. After topping over \$80 U.S. in the spring, prices toppled to the low \$60's by late summer. Feedlots fought the decline by not selling market-ready cattle and consequently made the wreck even worse.

Feeder cattle prices, on the other hand, remained relatively strong through the first half of 1991 with monthly averages \$4/cwt. over 1990. For the first 5 months of 1991, U.S. buyers were active on Canadian feeder markets due to the strength and tight supplies in their own feeder market. Also, with most feedlots having experienced a profitable fourth quarter 1990, it sure looked like those players were determined to keep pens full. By summer, runs turned very light and prices continued to remain strong. As numbers started increasing for the fall run it was evident that the early yearlings would trade steady with a year ago but the calves started working lower by the end of September. Prices ended the year about \$4-5/cwt. lower than the previous year.

Slaughter cow prices saw a more seasonal year. Price highs were similar to 1990 at about \$66/cwt. but the lows were lower to about \$52/cwt by November. Cows made their seasonal price low in November and have recently improved to around \$55-57/cwt.

### SUPPLY

#### CATTLE NUMBERS

Total cattle and calves in Canada on July 1, 1991 were 12.4 million head, up 1% from last year. Total beef cow numbers were up 3% at 3.7 million. Regionally, the western beef cow herd was 3.1 million, up 3% while the east was 625,000, up 2%. Total cattle and calves in Ontario were down 2% at 2.2 million head due mostly to a continuing decrease in dairy numbers as well as a



decrease in the number of heifers for slaughter. Ontario beef cows were up 1% at 390,000 head with beef heifers for breeding up 7% at 105,000. Smallest numbers in this cycle occurred in 1987 and there has been re-building since then. The January 1, 1992 inventory report is due out at the end of February and should indicate a further 1-2% expansion in the beef herd.

The dairy herd continues to shrink with a further 1% decline in 1991. Over the past 10 years, the dairy herd has decreased 21% going from 34% of the total cow herd in 1981 to 27% in 1991. With each cow expected to continue producing more milk every year and assuming static milk consumption, then this trend towards smaller numbers will only continue. Considering the higher dairy culling rate, this has meant more milk cows ending up as beef and therefore, slightly off-setting lower beef cow slaughter.

The U.S. inventory situation is lagging the Canadian expansion rate. This is partly due to the fact that the Canadian herd experienced a more dramatic sell down through the eighties so the shift back to expansion has had some "catching up" to do in Canada. Also, being smaller in total numbers, Canadian producers can respond quicker to market influences as a whole. U.S. reports are now indicating expansion has commenced. The January 1, 1992 inventory showed total cattle and calves up 1% at 100.1 million head. The beef cow herd was up 2% and beef heifers for breeding were up 3%. It was anticipated that annual increases would remain at 1-2% through to the mid nineties but the 1991 pace was faster at about 2-3%. A 1-2% rate could have easily been sustained but a quicker pace would mean more numbers sooner. If the current rate of expansion were to continue, a 105 million head herd could be experienced by the mid 90's. The same amount of beef would be produced by this herd as the 1975/76 herd of 130 million head due to increased productivity per cow.

#### PRODUCTION

Canadian domestic beef production in 1991 was down 5%. Total slaughter was down 7% with the largest decrease occurring in heifer slaughter - down 15%. Non-fed slaughter is basically unchanged from 1990, however, remember 1990 saw the smallest cow kill in over 15 years. Carcass weights were heavier again last year with the average up 13 lbs. from 1990. Fed cattle weights were the reason for most of the increase with steer and heifer weights up 18 lbs. As the fed market kept dropping through the summer you can see what happened to weights as producers fought the lower prices. Weights this fall reached an all time record high in Canada. This year, holding market-ready cattle added 32 million lbs. or about 48,000 extra head to the slaughter (that is an extra week of slaughter). The average carcass weight in 1975 was 550 lbs. whereas today's average is 678 lbs., an increase of 128 lbs./carcass. The end result is more beef production per cow. Unfortunately when the industry becomes as incurrent as it did this past summer, the effects can be devastating. Over and above the problem of producing more beef there are other problems that



are created. Cattle are continually backed up into one another and therefore aggressive marketing is required just to catch up. The heavy carcasses become difficult for packers to sell as retail and consumer demand today dictate smaller cuts and carcasses. All of these problems compound and make the road to recovery more difficult all the time.

U.S. beef production has now probably seen its low for this cycle. 1990 production was down 1% with a 1% increase in 1991. Fed beef production was expected to level out in 1991 but due to the heavier weights, was up 1-2% again. Non fed beef production was down 5-6%. As with Canada, this reduced cow slaughter is consistent with the expansion phase of the current cattle cycle. 1992 U.S. beef production is expected to see a 1-2% increase again.

Beef consumption in Canada has been relatively firm through the late 80's. Retail consumption of beef in 1990 was 58.2 lbs. per capita. Beef consumption has ranged between 58 and 60 lbs. for the past 4 years. Even though beef production will increase over the next 5 years, consumption is expected to remain relatively level due to population increases. U.S. beef consumption in 1990 was just over 67 lbs. and is estimated steady for 1991.

#### COMPETITIVE MEATS

U.S. pork production continues in a strong expansion trend. 1991 production was up 4% with 1992, expected to show a further 6-7% increase. This would be record large. Due to this trend expect low hog prices - they're currently under \$40 U.S., the lowest since 1980. A wide spread between cattle and hog prices will likely prevail through 1992. Increased productivity is also a factor in the hog industry. Production per sow is up from 1700-1800 lbs. in 1975 to 2900 lbs. in 1990.

Canadian hog prices have also moved lower along with U.S. prices. The lower dollar of late has helped stabilize prices somewhat. Current hog prices in Ontario are around \$55/cwt. Slaughter is up both in the U.S. and in Canada indicating possible liquidation due to poor margins. Canadian pork production in 1991 was down 2% compared to 1990. Pork exports were down 9% despite the removal of the U.S. countervailing duty on pork exports at mid year. Slaughter hog shipments to the U.S. were up 19% despite the increase in countervailing duty on live hog exports.

The long term trend in poultry production has been up. This trend is slowing slightly due to negative margins - U.S. poultry production will only be up 3-4% in 1992 compared to recent annual increases of 5-7%. Total U.S. meat consumption saw all 3 meats increasing in 1991 and again in 1992. As a result total meat consumption will be up 5 lbs./person in 1992. This is one of the largest yearly increases ever experienced. Canadian poultry



production reached an all time record high in 1991, up slightly from 1990. Poultry production has increased 36% in the past 10 years. Recent annual increases have slowed somewhat.

#### FEEDER CATTLE SITUATION

In the cattle cycle, the early stages of expansion typically create a shortage of available feeder cattle supplies. Here in Canada our tightest numbers occurred in 1987. That's when we saw record feeder cattle prices for this cycle. We even imported U.S. feeder cattle. But as you've heard, the U.S. expansion has started and that has made for higher feeder prices in the U.S. and some of that enthusiasm filtered across the border into Canada.

The high U.S. prices and demand brought strong U.S. interest to Canadian feeder markets. In 1990, just over 200,000 head of feeders were exported and 1991 saw 250,000 head south. Most of these exports however, occurred in the first 5 months of 1991. Since August the U.S. feeder market has trended lower and therefore removed most U.S. orders from Canada.

U.S. feeder cattle and calf supplies declined 9 million head in 7 years. The 1990 U.S. calf crop was under 40 million head with the 1991 calf crop considered similar. These calf crops are the lowest on record since 1960. Last year the U.S. yearling supply appeared to be at its lowest level in recent history. This tight supply was even further reduced by increased heifer retention therefore pushing U.S. feeder prices to record high levels in early 1991. Due to the tightening trend, placement of yearlings was difficult so lighter-weight cattle and calves were pulled ahead and placed on feed. This in turn increased the late spring/summer slaughter supplies. However, as mentioned earlier, the lack of industry currentness this summer allowed these cattle to overflow into fall. So looking at supply numbers alone is sometimes very misleading as cattle that are delayed and made heavier can seriously affect the final market price.

The trend in movement of feeder cattle from western Canada to eastern Canada continues to trend lower. Compared to the time frame of 1981-1985 when 500,000-600,000 head of feeders moved east, these numbers have dwindled down to about 200,000 in 1990 and the estimate for 1991 is likely just over 100,000 head. Reasons for this trend will be discussed later.

#### FEEDER PRICES

U.S. interest in Canadian feeder cattle definitely helped support prices through the last half of 1990 and the first half of 1991. However, when their feeder market dropped this summer in light of terrible feeding margins and higher corn prices, U.S. buyers became basically non-existent here. This fall prices opened steady to firmer than a year ago but faltered through most of the fall. These cattle have come under pressure as of late and are now about \$3/cwt. lower than they were in September.



Calf prices on the other hand had more trouble. Buyers were definitely more selective this fall and with no U.S. interest there was more than an adequate supply of calves. Continuing horrendous feedlot margins took their toll on buyers and they bid lower as the year progressed. Even with interest rates and feed costs down buyers were still trying to get their break-evens in line with the anticipated lower market this summer and lower NTS support levels.

U.S. feeder cattle prices also corrected with their fed market. Currently prices are about \$8-10/cwt. lower than last year. It is felt that considering the tight U.S. feeder supply, prices can be supported at these levels through early 1992. Available supplies are still historically small, but will increase 1-3% annually through 1993. The price trend in 1992 will be largely affected by trends in the feedgrain market, volatility in the fed market and expected narrow feeding margins. Peak prices are felt to be where they are now with the trend lower into spring.

The outlook for Canadian feeder prices will be indicative of feedlot margins, total numbers available and any potential U.S. demand. At this point in time all of these factors look negative for feeder prices. It has also been shown over time that it takes on the average, 11 months of feedlot losses before a major correction occurs in the feeder market. 1991 saw the widest spread ever between fed and feeder prices, July saw that spread go to \$32/cwt. - the average over the past 4 years is \$22/cwt. Look for this spread to narrow in 1992. Generally speaking feeder prices will be lower in 1992.

#### FEEDLOT SITUATION & OUTLOOK

Feeding margins can only be described as a wreck since June. The profits made in 1990 have now been given back (plus some). The western Canadian feeding industry as a whole lost \$18 million in the third quarter with the fourth quarter loss topping \$36 million. U.S. feedlots have seen similar losses. As mentioned earlier there has been a significant decrease in the number of feeder cattle moving east from western Canada. Obviously this leads to fewer cattle being fed in Ontario. Fed cattle production in the province has decreased from 28% of the Canadian total to about 20 or 21% in 1991. Through the eighties and the early phases of expansion tight supplies prevailed. The downsizing and rationalization of packing plants occurred throughout North America as older, less efficient plants found they could not compete with the newer, larger, cost-efficient plants. The squeeze for numbers only intensified this rationalization. New plants were built where the cattle were and some of the existing plants were upgraded to remain competitive.



Reasons on why the market got where it did are:

- poor beef demand and movement
- reluctant sellers
- heavy cattle
- premium futures market
- high break-evens
- strong dollar
- low hog prices
- low feedcosts

Interest rates have declined steadily over the past two years and are currently 6% points under then. Rates today are at 20 year lows. Interest rates and feedcosts are about the only positive factors for cattle feeding today.

The Canadian dollar has had an extremely negative effect on cattle prices. Recently (in November) when the dollar topped 89 cents it was the lightest its been since early 1978. Since 1987 the dollar has advanced 12 points from 77 to 89. Canadian cattle prices have obviously had to adjust lower. To show you just how this has affected prices look at this example assuming the same U.S. price.

November 1991 at 89 cents:  $US\$70 - 5$  divided by  $0.89 = \$73$

Four years ago at 77 cents:  $US\$70 - 5$  divided by  $0.77 = \$84$

Obviously fed cattle price trends in Canada will be largely indicative of U.S. trends. Numbers are currently tightening, both in the U.S. and Canada, but today's price strength will have to see feedlots stay current and beef demand will need to improve. Beef demand has been better in January than the latter part of 1991 as retailers did plenty of fill-in buying and good beef featuring through the month. This, however, may be difficult to maintain considering the competitive meat situation. With the U.S. market recovering to the mid/upper 70's then Ontario prices should be able to average in the mid \$80's for the remainder of this first quarter. Tightest U.S. supplies occur in March/April and this will be supportive to Canadian prices. This time frame will likely see the high for the first half of the year. However, as numbers of finished calves continue to increase into the summer, prices will work lower again. Of course, the dollar needs to be closely monitored because each time it moves up, cattle prices here are adjusted lower. On the other hand, if it decides to remain at 85 cents or lower, this will be price supportive to Canadian cattle prices. Since end prices are obviously lower than we were accustomed to lately, feedlots will have to adjust their inputs lower, namely feeder cattle, in order to maintain some type of margin.



## TRADE

Cattle and beef products are priced according to the situation of the North American market. Canada is an importer and exporter of both products and overall is a net exporter. The degree to which this country is a net exporter depends upon the market conditions, prices and exchange rates.

1990 was a big year for Canadian beef and cattle exports with almost \$1 billion worth of product moving. This was a 66% increase over the prior year. The breakdown was approximately \$700 million worth of live cattle (both slaughter and feeder) and just over \$250 million in beef and veal products. This translates into roughly 700 million lbs. of beef being exported when live cattle are converted to carcass weight.

Imports to Canada during 1990 were also at a high, at just over \$600 million. Of this figure, only \$17 million was live cattle, the remainder being beef and veal, this was a 12% increase from 1989. The tonnage of beef imported into Canada last year was 350 million lbs.

Up to November 1991 beef imports are up 8% with the breakdown by country as follows: U.S. up 25%, Australia unchanged from last year, New Zealand down 1% and Nicaragua down 42%. Beef exports are down 4% on the total with the country breakdown as follows: U.S. down 4% and Japan up 5%.

Live cattle trade between the U.S. and Canada changed slightly in 1991. Slaughter cattle exports were down 6% mostly due to the higher dollar. Feeder cattle exports, after setting a record 200,000 last year, surpassed that level and almost reached 250,000 although as mentioned earlier most of these occurred early in the year. Slaughter cattle imports were almost 3 times last year's level with large numbers moving into Ontario when the U.S. price dropped this past summer. It wasn't long however before the Ontario price adjusted lower. Feeder cattle imports were double 1990's pace with most of these coming into B.C. (and then into Alberta) and were mostly the Hawaiian cattle.

## SUMMARY

The trends in Ontario's beef herd through liquidation and again through expansion are typical of other areas of Canada and the U.S. It is unlikely to expect this trend to change. The price base for feeder cattle and calves out of a specific area may change if the bulk of the cattle are moving further (ie. into the U.S.) for further feeding but this transportation cost can be adjusted for. The beef industry is in an expansion phase in Ontario, in Canada and in the U.S. Factors affecting trends like this come from the North American scene of which we are only a small but important part. Canada has excellent advantages for raising cattle no matter where they end up being fed, processed or consumed. Even though trade is becoming a global market there is no reason why Canada or Ontario or northern Ontario can't have it's place.



## HIGHLIGHTS OF 1991 &amp; 1992

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NLCAT

### 1991 REPLACEMENT HEIFER PASTURE PROJECT - Growth Performance with Two Different Supplements

Fifty growing beef and dairy heifers were split randomly into three groups. These groups were assigned to separate pastures. Group 1 (control group) received free choice salt and mineral. Group 2 was fed a 16% grain supplement which contained salt and mineral. Group 3 received 44% soybean meal which contained salt and mineral. Heights, weights and body condition scores (BCS) were taken at the beginning and end of the pasture season. The amount of each supplement was measured.

**Table #1** **1991 Pasture Project**

Type of Supplement	# of Animals	Feed Consumption (kg)	Avg. Wt. Gain (kg)	Avg BCS Change	Avg Ht Change (inches)	Net Increase (\$/hd)
1. Control	17	0	52.63	- 0.81	2.95	86.84
2. Soybean Meal (44% C.P.)	16	109.25	73.86	- 0.54	2.89	86.69
3. Grain Ration (14% C.P.)	17	182.25	83.19	- 0.19	3.11	112.92

### 1991 CALF TRIAL - Growth Response of Calves to Growth Implants (Ralgro) and Deworming (Ivomec)

Two trials were carried out on the beef calves at NLCAT in 1991. A growth implant trial (Ralgro) was conducted on calves to determine the growth response of calves to Ralgro and the most effective time to implant these calves. The second trial was conducted to determine if there was a beneficial response to deworming calves at the beginning and end of the pasture season.

Calves were split into 4 groups. A control group did not receive any growth implant, group #2 received an implant shortly after birth, group #3 received an implant at weaning and a fourth group received two implants, one at birth and a second at weaning. These groups were divided in half, one half receiving Ivomec, the other half not receiving any Ivomec.



Table #2

## 1991 Calf Trial

Treatment	# of animals	Average Final Wt. (lbs/hd)	Increase Profit \$/hd
Ivomec	50	694.0	2.15
No Ivomec	48	690.0	0.00
No implant	28	679.0	0.00
Early Implant	21	688.0	8.47
Late Implant	28	700.5	22.49
Early and Late	21	704.5	25.75

## 1992 REPLACEMENT HEIFER FEEDING TRIAL

Thirty yearling heifers were randomly divided into two feeding groups. One group receiving a 16% grain ration and the second one receiving a 16% ration with additional protein. The protein source is roasted soybeans.

Both rations are balanced for energy, but the second ration has 15% more protein. Differences in a) weight, b) height, c) body condition score and d) reproductive status at breeding time will be measured.

## 1992 COLOSTRUM ANALYSIS PROJECT

Measurement of the Immunoglobulin level in colostrum from cows is correlated to a) the levels obtained by the calf (measured in the blood) and b) health problems in the calf. This project is done in co-operation with the NLCAT dairy herd and the KCAT dairy herd.

## 1992 COW-CALF MANAGEMENT PROJECT

The project is set up to determine the benefits of different management methods of feeding cows and calves. The beef/cow herd will be split into four different management groups. The control group will be cows and calves with no supplement other than salt and mineral, the second group will have creep feed available for the calves, group number three will have supplemental feed available for the cows and in group number four, each cow will have two calves (a foster calf will be added) and creep feed available for the calves.

We will measure the total amount of calf (kgs & dollars) available for sale in the fall per cow calved. We will determine the effects on the calf in terms of growth responses, and the cow in response to body condition score and reproductive status. This will give us the ability to predict the net profit available with different management practices.



## Prevention, Detection and Treatment of BVD

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February, 1992

Bovine viral diarrhea (BVD) is a disease that is confusing to understand and frustrating to control. Part of the problem results from the fact that BVD is really a group of diseases each caused by the BVD virus rather than just a single disease. Infection with BVD can cause a variety of seemingly unrelated diseases. Which disease occurs following infection is dependent on several factors particularly the animal's age when it becomes infected, the animal's immunity and, if the animal is pregnant, the stage of pregnancy. It also appears that differences between BVD viruses can influence the type of disease. Most diseases due to BVD are not distinctive enough to allow producers or veterinarians to diagnose them without the aid of special laboratory tests.

To understand BVD, it helps to group the diseases by the age of infection. One group of diseases occur from infection of adult cattle or calves and a second group follows infection of the fetus before the calf is born.

If BVD virus infects adult cattle or calves, there is usually only a short period of mild illness when the animal has a fever and a poor appetite. Usually affected cattle are not noticed to be sick but a few cattle may have a more severe illness with high fever, diarrhea and ulcers in the mouth. Almost all these cattle will recover completely within 7 to 10 days. If infection occurs in stressed cattle such as shipped cattle, the illness may be severe or the cattle may become more prone to other diseases such as pneumonia. Some cattle may die from these other diseases. BVD virus may cause severe disease and deaths if it is introduced into a herd that has not been infected before. These herds have poor immunity to the virus and disease is more severe as a result.



None of these diseases in cattle and calves is distinctive enough to allow a veterinarian to say that the illness is due to BVD virus but veterinarians correctly often suspect BVD when outbreaks of disease occur. The only way to accurately identify BVD is to perform laboratory tests on blood from sick and healthy cattle in the herd.

Infection of pregnant cattle often results in more severe disease than infection of other cattle. If BVD virus infects a pregnant cow, the virus may cause only a mild illness in the cow but the virus can travel in the blood of the cow, cross the placenta and infect the fetus. The fetus may be damaged or killed by the virus, even though the cow doesn't appear to be sick. If the fetus is killed, BVD virus infection will be seen as abortion or mummification. If the fetus is killed early in pregnancy and is resorbed the cow appear to be a repeat breeder. If the fetus is damaged by the virus but not killed, the calf may be born stunted and weak or have congenital defects. The BVD virus damages the brain and spinal cord of the fetus. Calves with congenital defects from damage to the brain or spinal cord are incoordinated and have a difficult time standing to suckle at birth. Some of these calves may also be blind at birth. If the fetus is infected late in pregnancy, it may become immune to the virus without being damaged or killed by the virus. These immune calves are normal at birth. When the fetus is infected, it is extremely difficult to prove that BVD virus is causing the problems even with the use of laboratory tests.

There is another special and important outcome of infection of the fetus. In this case, if the fetus becomes infected during the first 4 to 5 months of pregnancy, the fetus may be infected with BVD virus but not be damaged by the virus. The fetus will continue to grow and at birth, the calf will appear to be normal. In fact these calves are infected with BVD virus and will remain infected throughout their lives. These calves are said to be persistently-infected carriers of BVD virus.

#### **Persistently-infected carriers:**

In the last few years, veterinarians and others have begun to understand the importance of these persistently-infected calves in the spread of BVD virus. All persistently-infected calves are carriers of the



BVD virus. They continuously pass BVD virus in their saliva, nasal discharge, tears and other body fluids. This BVD virus is capable of infecting other cattle. These carriers can live for several months to years without showing ill effects from being infected with BVD virus. The carriers can stay in herds and serve as sources of virus that infects other cattle. Veterinarians now believe that these calves are the major source of BVD virus within the cattle population and that these calves serve as the most important source of infection of other cattle in dairy or beef herds. Sale or movement of persistently-infected cattle may be the most common way that the virus is carried between groups of cattle on a farm or between herds.

Many persistently-infected calves live for months to years and show no ill effects of the infection. However, some carrier calves are more prone to have chronic infections such as some types of pneumonia because the BVD virus harms the calf's ability to fight off diseases. As a result some carrier calves are stunted or poor-doers. All persistently-infected calves may develop the most dramatic form of BVD, a disease called chronic BVD or mucosal disease. In mucosal disease, the carriers become very sick with high fever, ulcers in the mouth, lameness and severe, often bloody diarrhea. They usually die within 7-14 days but some may linger for weeks. Mucosal disease most often occurs in carriers when they are between 6 months to 18 months of age. Although many carriers will die before they are 2 years old, some may live for years before they develop mucosal disease.

### **Treatment of BVD:**

Because BVD is caused by a virus, there are no effective treatments for cattle that have the disease. Some treatments are beneficial because they ease the severity of the illness or reduce the impact of secondary infections. There is no treatment that will stop carriers from passing BVD virus once they become persistently-infected by infection as a fetus and there is no treatment for mucosal disease.



## Control of BVD:

### A. Be sure that BVD is the problem.

If you suspect you have a problem with BVD on your farm, you should consult with your veterinarian. If you suspect that you have had deaths from BVD, a post mortem (autopsy) and laboratory tests are required to ensure that BVD virus is the cause of the problem. A control program for BVD must be well planned and coordinated in order to be effective and economical.

### B. Vaccinate breeding stock.

Current control recommendations focus on preventing infection of the fetus to prevent the birth of persistently-infected carriers. It appears that if pregnant cattle are immune to BVD virus before they become infected with the virus, the antibody in their blood will prevent the virus from infecting the fetus. Immunity can be induced by vaccination of heifers and cows. To be most effective, vaccination should be given before breeding or no later than the first 4 to 6 weeks after breeding to ensure that the fetus is protected during the first 5 months of pregnancy. Remember, the goal of vaccination is not for protection of the heifer or cow but is for protection of the fetus after the heifer or cow becomes pregnant. Many veterinarians may not routinely recommend vaccination of most non-breeding animals if they feel these animals are not usually at risk of having severe disease from BVD.

Vaccination helps protect the fetus from infection and prevents the production of persistently-infected carriers. If there are already carriers in the herd, they will not be influenced by vaccination. Remember that carriers are persistently-infected with BVD virus and continuously have virus in their saliva, tears and nasal secretions. The virus does not survive well after it has passed from the animal. Cattle must have close contact with a carrier in order for spread of infection to occur. Because the virus doesn't survive well once it is passed from a carrier, the farm premises do not become contaminated with BVD virus. Rather, carriers appear to be the major way that BVD virus stays on the farm. If the



carriers are removed from the herd, BVD tends to disappear as a problem in the herd unless it is brought into the herd again.

### C. Identify and remove carriers.

If you decide to introduce a BVD control program, you should consult with your veterinarian to decide if you should attempt to identify and **REMOVE** carriers. Your veterinarian will help identify potential carriers and arrange for testing.

How can these persistently-infected carriers be identified? Carriers have BVD virus continuously circulating in their blood. One method of identifying these carriers is to find the virus in the carrier's blood by growing the virus out of blood samples. The virus is usually isolated from the white blood cells in the blood. This procedure is called virus isolation and requires at least 10-14 days of laboratory time to complete. Virus isolation requires a large commitment in time, materials and labour. It is important that producers ship to slaughter any carriers after they are identified.

If your veterinarian has confirmed deaths from mucosal disease in your herd, it is important to realize that cattle dying from mucosal disease were carriers. They became infected as a fetus during the first 5 months of pregnancy. Because other calves may have become carriers at the same time, it is valuable to check your records to see if other calves in your herd were born at the same time as any calves that died of mucosal disease. Also the cows of calves dying of mucosal disease should be checked to see if they also are carriers.

Veterinarians will often check the blood of cattle for antibody against the BVD virus. This test is not used to identify carriers but helps to show if BVD virus is present in the herd.

Take home messages:

-if you are considering vaccinating against BVD, the breeding cows and replacement heifers before are the most important groups to vaccinate.

-if you are considering vaccination, be sure to consult with your veterinarian early enough to implement vaccination of cows and heifers before breeding or shortly after breeding.

-if you believe that you have a chronic problem with BVD and the diagnosis of BVD has been confirmed, you and your veterinarian may wish to attempt to identify any persistently-infected carriers in the herd. This will be done by blood testing. Identifying cattle and keeping good herd records can help identify potential carriers for testing. All carriers should be shipped to slaughter.



# NORTH EASTERN ONTARIO SOIL & 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 & 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 1992 Award of Merit winners are:

Don Dawson, nominated by the Muskoka SCIA  
David Hackett, nominated by the Cochrane North SCIA  
Harry Jaggard, nominated by the Manitoulin SCIA  
Wallace Morbin, nominated by the Algoma SCIA

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

## DON &amp; DONNA DAWSON

## Bracebridge, Ontario

Don Dawson was born in Lloydminster, Saskatchewan and came to Bracebridge at an early age. He grew up on one of the farms north of Bracebridge and he attended a local school. In 1956, Don entered into the A.I. Technician program in Muskoka which he worked at for nine years. In 1958 he married Donna Hardy, a farm girl who grew up on a dairy farm near Bracebridge.

In 1963, Don and Donna purchased their farm located in Monck Township. They started into milk production two years later and continued this until October of 1988. After this the Dawsons entered into beef production but left this business in the spring of 1991 when they held a herd disposal.

Don has been a member of the SCIA for more than twenty-five years, working his way through the executive committee. He was chairman in 1982 when Muskoka hosted the NEOSCIA Summer tour. Don has been an active member in the Bracebridge Agricultural Society for many years and was the secretary for the local milk committee also.

The Dawsons became a total team; Donna became very interested in herd health, breeding records, milk production, as well as keeping close track of the financial books. Don's interest was in reproduction management, cropping rotations and building the soil base into a high producing farm.

The Dawsons have three children and one grandchild. Presently, Donna is very active with the Society for the Physically Handicapped as son David is a resident of the Participation House in Hamilton under the Physically Handicapped program in Ontario. The Dawson family and children have participated in 4-H projects and activities in Muskoka.

Whenever Don had a chance he spent a great deal of time tinkering in his workshop getting one of his antique and steam tractors working just a little better than it worked the last time. Refitting these antique tractors and equipment is a love of Don's which he takes very seriously.



## DAVID HACKETT

Cochrane, Ontario

David Hackett has been actively involved in farming since completing elementary school when he started working on his father's farm full time. From 1942-1945, David spent his winters off the farm working on the Trans Canada railroad.

In 1946 he pursued other interests in agriculture - potato production. In the 1950's David grew potatoes in two locations, one at Cochrane and one at Timmins. In 1960 all of his potato production was moved to the Cochrane location; production was expanded to 30 acres. During this time period, he also spend four years as a federal Seed Potato Inspector for the Cochrane region. Changes occurred in the 1970's with the introduction of a Pick-Your-Own strawberry operation. Since that time both the seed potato and the strawberry enterprises have expanded. In 1983 David started into the Elite Seed Potato Development project, growing 5 acres of seed potatoes for the government. David's efforts in agricultural production have been rewarded by winning the OSCIA 500 bushel club contest in the early 1950's and the 1954 International Seed Potato Contest.

Off the farm, David Hackett has been very active in both agricultural and non-agricultural organizations. He has been involved with the local Agricultural Society, a 4-H leader, agriculture representative on the local Board of Trade, member of the Ontario Seed Potato Growers' Association, member of the Ontario Potato Marketing Board, director and president of the Cochrane North SCIA, member of the Cochrane Farmers' Co-op and the U.C.O., and has been actively involved in increasing the Elite Seed Potato Production program. On a provincial basis David has represented the Cochrane District as director to the Ontario SCIA and the Ontario Fruit & Vegetable Growers' Association.

He has been the trustee of the area Board of Education and has been very involved with the local church for years.

David and his wife Margaret have 6 children.



## HARRY L. JAGGARD

Manitowaning, Ontario

Since the age of 13, Harry Jaggard has been involved in farming. Harry finished Grade 8 and then started farming full time with his father, raising cattle, sheep, pigs, chickens and turkeys. After marrying, he continued to farm, residing on a farm owned by his father. During the early to mid 1940's Harry bought several acres of land in Clover Valley and New England (Assiginack Township). By 1947 he had acquired 450 acres of land; time was then spent building and renovating farm buildings. With this amount of land machinery was becoming a necessity; in 1942 he purchased a Farmall "A" tractor, one of the first tractors on Manitoulin. Later (1949) he purchased a W6 International; both tractors are still in running condition today. In the early 1950's Harry purchased a threshing machine and provided a custom threshing service.

Continuing to innovate, Harry started growing corn in the mid 1950's and also built an upright silo. The production of corn allowed him to keep more cattle therefore he needed more pasture land. During the next several years he purchased several hundred acres of land. He sold part of that land in 1975 and in 1980 he sold the remaining part of the ranch (except for the 50 acres where he now resides).

While farming, Harry milked cows for cream, grew oats and potatoes and raised and sold pigs and cattle. The beef herd reached 50 cows and 150 backgrounders at it's peak. Innovation and good management have been integral to the success of this farm operation.

Harry Jaggard has also been involved in community organizations. He has been a member of the Manitoulin SCIA, Beef Improvement Association and the Manitoulin Co-op for several years. Outside of agriculture time has been spent on the Game Conservation Committee, as director and Sec./Tres. of Assiginack Telephone System, a School Trustee, Councillor and Reeve of Assiginack Township, actively involved with the local church and numerous other community benefits.

Harry and his wife Gladys have four children.



## WALLACE D. MORBIN

Bruce Mines, Ontario

Wallace Morbin had early roots in a progressive agricultural industry. His father was the first to bring purebred cattle into the area. Like his father, Wallace has a great interest in being a good farmer.

Wallace and his wife started into farming near his parents' farm. Their operation began with one cow who had twins. Upon the death of his father, Wallace purchased the family farm where he continues to farm today. He got his start as a cream producer and then moved on to shipping milk. He became a top dairy producer and won many awards for his small herd. Later he switched the business to a beef operation and today Wallace runs a cow-calf and veal operation.

Excellence has been proven in all areas by winning many prizes at local fairs for his cattle and field crops. One of his greatest pleasures is to have a prize field grain or hay.

Wallace has one daughter, two grandchildren and two great grandchildren.