REPORT ON AN AGRICULTURAL STUDY TOUR OF THE

UNITED KINGDOM

1977

CANADIAN AGRICULTURAL TRAVEL SCHOLARSHIP ASSOCIATION

(NUFFIELD TRAVEL SCHOLARSHIP)

by

Ed. Lautard

RESPONSIBILITY FOR CONTENTS

I take full responsibility for the contents of this report. The views and opinions expressed, are based on my personal observations and interpretations of information obtained.

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ACKNOWLEDGEMENTS

Many organisations and individuals contributed to making my trip possible.

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The Secretary, Mr. Gary Carlson, for all his help.

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The Nuffield Foundation, Nuffield Lodge, Regents Park, London, in particular, Mr. David Yonge, Fellowship Advisor.

The United Kingdom Farming Scholarships Trust, and the National Farmers Union, especially Captain John Stewart and Mr. John Cyster.

The Milk Marketing Board, and Mr. Britton, Transport Manager, for the generous loan of a car for the duration of my stay.

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My wife Mary, whose help and encouragement enabled me to pursue the scholarship.

Margaret Lautard for typing the report.

Others who provided hospitality and information while I was in the U.K. are listed in the Appendix of this Report.

BACKGROUND INFORMATION

Until recently, the Nuffield Farming Scholarships originated, and were administered by the Nuffield Foundation, a charitable foundation based in London, England. In the United Kingdom, funding is provided now, by the National Farmers Union, under the auspicies of the United Kingdom Farming Scholarship Trust. This enables a number of British farmers to travel individually to various countries to study a specific aspect of agriculture. Since 1950, the Nuffield Foundation has enabled farmers from Australia, Canada and New Zealand to travel to the U.K. to study agriculture. The U.K. Farming Scholarship Trust now provides an extensive programme for Commonwealth scholars, with excellent contacts, and opportunities to study U.K. farming.

In Canada, the programme is now controlled and financed by the Canadian Nuffield Scholars Committee. I was awarded the scholarship for Canada in 1977, and studied farming methods, etc., in the United Kingdom from mid-February until 10th July. I travelled approximately 10,000 miles through England, Scotland and Wales.

The purpose of this report, is to provide a summary of my trip, and some practical information that I feel may be of benefit to farmers in Canada. Some of the ideas and techniques used in U.K. farming could be put to good use in Canada, and I will attempt to touch on some of the more interesting observations that I made.

INTRODUCTION

The programme officially began at Nuffield Lodge, in Regents Park in London, where I joined two Nuffield scholars from Australia, and two from New Zealand. We were greeted and briefed on what our stay in the U.K. would entail. We spent a week in London with meetings in various government offices, etc. We then picked up cars loaned to us by the Milk Marketing Board, and drove to our first farmer hosts for a two week stay.

We then re-assembled in London, and started on a two week tour of the southern half of England in a Volkswagen bus, visiting selected farms, agricultural industries, and research stations. This was followed by a stay in the Woburn area, visiting more research institutions and government offices with the Nuffield Scholarship executive in the U.K. and government officials who gave us information and contacts for the remainder of our stay.

I had originally planned to concentrate my study in the area of cropping practices and hog production, but I spent considerable time studying commercial vegetable growing - mainly carrots.

I spent some time at the Southampton Wholesale Vegetable Market, and attended some of the major agricultural shows.

FOREWORD

Agriculture plays a very significant role in the U.K. economy. The Government recognises this, and over the years, has created a climate of enthusiasm and confidence among farmers. This policy has had many beneficial side-effects, for example, the countryside has remained very rural, orderly, and has in general, a well-kept and prosperous appearance.

For a country with a relatively small land area and a large population, (56 million) one cannot help admire the degree of self-sufficiency that has been achieved. Some examples of this are as follows:

Grains	70%
Potatoes	93%
Total meat supplies	86%
Milk and milk products	57%
Eggs	97%

In spite of the fact that land taken out of agricultural production for forest and woodland has been 69,000 acres per year, and land lost permanently for roads, housing and industry amounts to 75,000 acres per year, the total agricultural production has been increasing at the rate of 2½% per year. This has been made possible through the wide-spread use of proven production methods such as weed

control, crop rotation and efficient use of fertilizers. A vigorous programme of research and genetic improvement, particularly in the fields of crops, hogs, poultry and milk production, has also contributed significantly.

The Government looks upon increased agricultural production as being in the best interests of the nation.

Farms in general, are well-kept and highly mechanised. A large percentage of the farms are owned by wealthy individuals, institutions or corporations. These farms are either rented (short term) or let out to tenant farmers (lifetime). Another wide-spread practice is to hire a complete staff, including a farm manager. Hired labour plays a big part in the U.K. agricultural scene, and one cannot help but be impressed with the quality of farm managers and workers. There are still many owner-occupied farms.

HOG PRODUCTION

Although I did see some of the small herds of pigs on family-farm type of mixed farming operations, most new units are 200 sow size, quite often along with a dairy herd, or a grain farming operation.

Sows

Best results seem to be achieved when about 12 farrowing crates per sub-unit are used. These are usually located in long buildings with solid partition dividers. Five week weaning is the most popular system, however many producers are experimenting with three week weaning. Twenty-one pigs sold per sow per year is considered very good.

Evening out of litters is practiced on some farms, with good results but it would undoubtedly cause some performance recording problems.

Farrowing

Crates are extensively used, and are of box type construction, raised about 18-20 inches off the floor level, 6 feet wide by 7 feet long, with a tubular steel sow crate set slightly off to one side, and a built-in feed trough.

The back portion of the crates have reinforced concrete slats, or expanded metal flooring, positioned over a slurry pit running the length of the building. These pits can be quite simple, and need not have any slope. They are usually 4 feet wide and 5 feet deep.

Sows seem more content when heat lamps are in the front corner of the crate, where she can see the baby pigs.

Fattening

When the pigs reach the fattening stage, I felt that pipeline slurry feeding holds many advantages, be it whey or other liquid feed. Two of the main advantages of liquid feed are:

1) automation
2) absence of dust which contributes to respiratory problems.

Freezing would cause some problems in Canada, but could be overcome by locating pig units underground, (hillsides). Also, feed and waste could be handled by a gravity system. Temperature control would be easier and cheaper, both in extreme hot and cold temperatures. Some research in this area may be worthwhile.

BEEF CATTLE

Ninety percent of the beef produced in the U.K. originates in the dairy herd. These animals are usually Friesian or Hereford-Friesian cross calves. (The Friesian cow is smaller, and considerably more fleshy than our Holstein))

I only visited one cow-calf operation comparable to what we are accustomed to in Canada. Along with seed potatoes and 650 sheep, the farm had 240 Hereford-Friesian cross cows. These cattle were kept in 40-cow families, year round. All replacements were bought, and all the calves were sold each fall. The cows were bred to Charolais bulls, and the calves from this three-way cross looked extremely good. The theory that small herds do better than large ones was mentioned by several people in the U.K.

Straw makes up a very substantial portion of all the winter feeding programmes. Straw is readily available from the 9.5 million acres of land in grain production. Grass silage is used extensively. Nearly without exception, it is stored in bunker silos. Quite a few of these are covered, and all have paved bottoms. Silage is usually self-fed.

CROPS

Although some alfalfa is grown, it is used mainly in the manufacture of prepared feeds, (pelletted) and corn is grown to some extent, and used for silage.

The main silage crop is Italian ryegrass and Perennial ryegrass. Relatively large amounts of nitrogen fertilizer are used. Initially the equivalent of 400 lbs. of 21-0-0 is applied in February, with an additional 200 lbs. after the first cut, which is very early in June, when the grass is about 14 inches tall. This is repeated for a third cut in many cases.

The absence of snow, and a very long growing season enables some types of farming operations to go on virtually all year round. This helps utilise labour to good advantage. Double cropping of vegetables is quite common.

Of course, many factors and practices contribute to the overall picture, but I think three things stand out:

1) Crop rotation
2) Efficient use of fertilizer
3) Wide-spread use of weed sprays.

CROPPING PRACTICES

A wide variety of crops is grown in several different combinations, usually on a 5 or 6 year rotation. Some examples of this are listed below.

Year	Example A	Example B	Example C
1	Perennial ryegrass	Sugar beet	Carrots
2	Perennial ryegrass	Potatoes	Wheat
3	Peas	Wheat or Barley	Beets
4	Wheat	Turnips for grazing	Wheat
5	Wheat	Peas	Onions
6	Wheat	Wheat or Barley	Wheat
7	Barley	Barley	Carrots

There is wide-spread interest, and some practical application of minimum tillage. Equipment is very much in the development stage. However, yield results were quite impressive.

VEGETABLE PRODUCTION

I spent considerable time observing vegetable production, mainly carrots, but other root crops as well. As with most field crops, vegetables are grown as part of a crop rotation. Generally speaking, vegetable growing is more specialised than other crops. Many farmers have formed companies or co-ops to supervise and co-ordinate growing and marketing. Planting, cultivating, harvesting and processing equipment is owned by the co-op. I visited one co-op that grew 1500 acres of carrots.

Secondary tillage is usually done by a rototiller or the new Howard Rotospike, or one of the several other makes of power oscillating harrows, which do a very good job. Ridged spike-tooth harrows, sometimes incorporating a crumbler bar, also do quite a satisfactory job. The power harrows seem to have a slightly better levelling effect than the rototillers, with no ridging between passes.

Some farmers have been experiencing problems of a layer of hardpan developing at the bottom of the tillage depth which retards root growth, especially in carrots, with the rotovator-type of equipment. Some people in the industry believe that variations in the depth of cultivations is the answer to the problem of pan. A chisel plow would be a good tool to achieve this variation. A good seed bed is of prime importance in the growing of carrots. A seed bed depth of 12 inches is ideal.

Correct amounts of fertilizer are essential, and should be worked into the soil up to one month in advance of drilling, if possible. Soil analysis should determine the correct amounts of fertilizer. One farm I visited

was using 896 lbs. of 10-20-20. 5-5-15 was used on another farm, at 550 lbs. per acre. Lime should be applied if the pH of mineral soil is below 6.5, or on peat soil if it is below 5.8.

Trace Elements

Boron deficient soils will cause small dark spots beneath the skin, or in severe cases, the whole carrot will appear darkened. 20-25 lbs. of borax per acre would be recommended for boron deficiency.

Manganese deficient soils should receive a foliar spray of 8 lbs. of manganese sulphate per acre, dissolved in water. Carrots are very susceptible to this deficiency and more than one application may be required.

Copper deficient soils should receive one foliar spray of 2 lbs. per acre of copper oxychloride or cuprous oxide applied mid-season.

Carrots respond to salt (sodium chloride) on sandy soils. It can be applied at the rate of 300 lbs. per acre, and potash requirements may be reduced.

Seeding

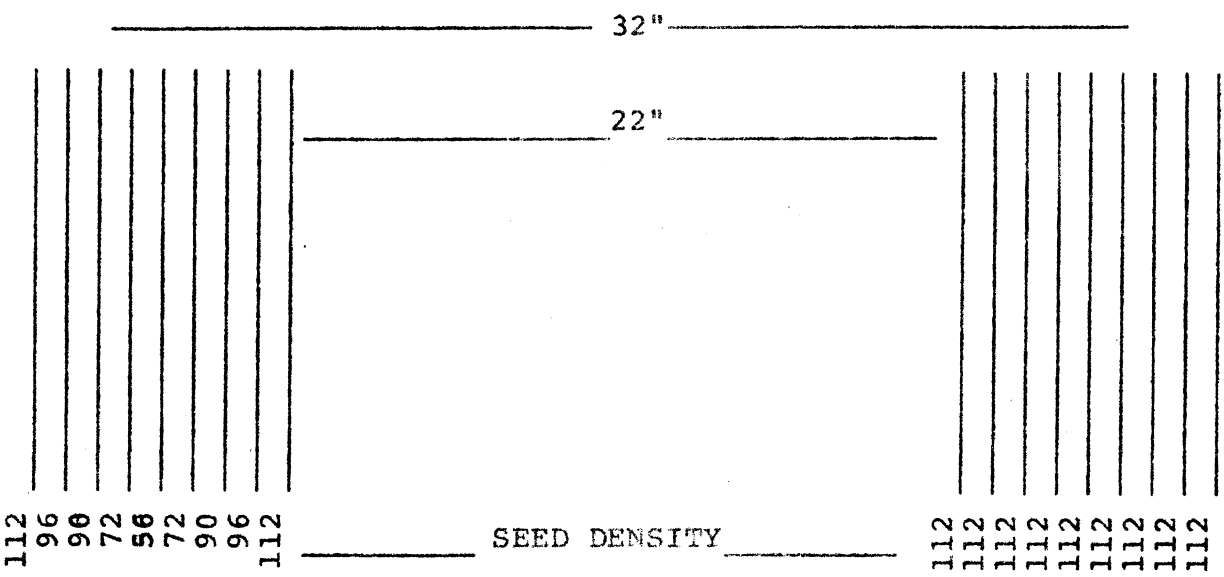
There are several makes of precision drills in use in the U.K., each with its own particular advantages. Carrot size, and plant density are closely related, therefore one must know what market you are going to produce for, before seeding time.

There are many combinations of row spacing in use. Some examples:

1) single rows, 15 inches apart, 1 inch between plants, for early carrots.
2) double rows, 2 inches apart on 20 inch centres, for Spring lifting, (sown in May, hilled in October to combat freezing, lifted from March to May).
3) 48 inch bed system, outside rows 2 inches apart, 1 inch plant spacing, centre six rows 3 inches apart, 2 inch plant spacing.

A popular method is to grow 9 rows on a 10 inch band, with 30 inch centres. This leaves 22 inches between bands. By reducing seed rates in the inside rows, a higher percentage of saleable carrots, and greater yields can be achieved.

The following diagram explains the results:



Max saleable carrots up to 53 T per acre

8-9 T per acre

Too Small

If possible, alternate seeding directions from year to year; use less seed for late-sown crops. Do not overlook the benefits of crop rotation. Some people felt that a 5 year rotation on carrots was about right.

Spray

A pre-emergence spray for weed control, and insecticide granules applied at time of seeding was a common practice.

Harvesting

Potato diggers were being used on carrots sown in a 10 inch band, after flail topping had been carried out. Top lifters are also used and some of the larger farms and co-ops are modifying other root harvesting equipment or building machines from scratch, using some standard parts from existing equipment available for other crops. Mechanisation is progressing rapidly in all aspects of vegetable production.

MACHINERY AND EQUIPMENT

Most farms are well equipped. A wide range of equipment is available and the agricultural shows are popular with farmers.

There is quite a number of small companies scattered throughout the country, making specialised equipment. One interesting gadget I saw being used was a hydraulic hitch pin on the back of a forage harvester, used in conjunction with a docking mechanism on the forage trailer, to hitch the trailer to the chopper. This made virtually non-stop chopping possible.

A new innovation that we may hear more about in the future is fluid drilling of pre-sprouted seed. This equipment was displayed for the first time at the Royal Show.

Crumbler barrels, used in conjunction with secondary tillage equipment, do a good job of breaking up clods, and have a slight compacting effect.

I found the Blake Hydram pump most interesting. It is driven by the pressure of the water passing through the

pump, and requires no other power source. It will pump 11% of the water that passes through it. Its practical application is for domestic and stock watering. With a 50 foot working fall, and a six inch diameter drive pipe, one hydram pump I saw was supplying water for 240 cattle and 650 sheep, through an ingenious system of two small reservoirs, and six miles of plastic pipe. The system had about 100 watering points in various pastures.

UNITED KINGDOM GOVERNMENT POLICY

I do not want to give the impression that farming in Britain is without problems, in fact, some segments of the industry were experiencing serious economic problems and over-supply, particularly the hog producers, (1976-77).

The tax structure forces farmers to invest more money in equipment in good years, than is justified. However, as I have mentioned earlier, the government over the years has created a climate of confidence through a system of grants and subsidies that has had a lasting benefit to the industry, as well as a spin-off effect on the whole economy, not to mention the contribution that increased production has made to the country's balance of payments.

The National Farmers Union, which is comparable to, but far more effective than our Canadian Federation of Agriculture, must be given a great deal of credit for the progress that has been achieved since World War II.

Since the entry of the U.K. into the E.E.C., and the formation of the "Common Agricultural Policy", the old system of grants, etc., is being replaced with a new common policy for all the countries in the E.E.C. towards

food production and imports. This has forced many adjustments on U.K. farmers, and has had considerable impact on Canadian exports to the U.K.

CANADIAN FARM POLICY

The importance that European countries place on a strong agricultural economy should be an example for our own government to follow.

Farmers in this country cannot continue to shoulder the burden of a cheap food policy. We need tariff protection and/or import controls on commodities that we can produce economically. However, as a beef producer, I do accept the concept of free trade in beef with the U.S.A.

The government should encourage development of a modern farm economy, so that we could produce our own food requirements. Production of those agricultural commodities where we have a natural advantage over other countries should be encouraged, along with a vigorous export policy.

Manufacturing of machinery and equipment for handling products that we export should be encouraged, because we have a built-in psychological and technical advantage. This holds true for logging, sawmilling, mining, fishing and oil industry equipment as well as agricultural equipment.

CANADA AND THE HUNGRY WORLD

Canada has an obligation to assist people in less fortunate areas of the world, and we should do more than we are at the present time.

Food aid is essential as a short term measure, and should continue; but for a long term solution we should give technical and financial assistance to develop the agricultural potential of the Third World countries. If adequate food supplies were available within these countries, they could trade on a more equitable basis among themselves.

The problem of hunger and poverty in the world is caused by political and economic decisions and prejudices, therefore we can work towards a solution.

Respectfully submitted

Ed. Lautard

APPENDIX

Individuals and agencies contacted:

Mr. A.R. Heygate, Bugbrooke Mills, Northampton. (Flour mills)

University of Nottingham School of Agriculture, Sutton Bonington, Leics., and Prof. J.D. Ivins.

Veterinary Investigation Centre, Sutton Bonington, Leics., and Dr. F.G. Clegg.

Gleadthorpe Experimental Husbandry Farm, Mansfield, Notts.

Mr. Simon Murch, Osberton Grange Farm, Worksop, Notts. (Dairy farm)

Mr. R.B. Nelstrop, Westfield Farm, Branston, Lincs.(Crops, sheep)

British Crop Driers Ltd., Temple Grange, Navenby, Lincs.

Mr. H.R. Fell, and Co. Ltd., Worlaby, Brigg, S. Humberside. (Crops, sheep, bookkeeping)

Mr. and Mrs. Hutchinson-Smith, Hinton Bank Farm, Shrewsbury. (Cheese makers)

Mr. A.B. Morgan, Wood End Hall Farm, Whitchurch. (Hogs)

Mr. P.L. Beecroft, Haylea Farm, Westbury. (Hogs)

Mr. J. Bedell, Linch House, Shrewsbury. (Sheep, beef cattle)

Mr. A.E. Everall, Sherlowe, Telford, (Beef cattle)

Mr. W. Milner, Mr. R. Milner, Callaughton House Farm, Shrewsbury. (Beef cattle)

Mr. G.H. Ballard, Old Yates Farm, Abberley, Worcs. (Hogs, orchard)

Luddington Experimental Horticultural Station, Welford-on-Avon, Warwicks.

S.C.A.T.S. - Head office and seed cleaning and pelletting plant, Winchester, Hants.

Merrist Wood Agricultural College, Guildford, Surrey.

Day with Dr. Paul Crossman, Veterinarian, Godalming, Surrey.

Mr. Ron Brookes, Feed Merchant, Petworth, Sussex.

Whitley Park Estate, Manager - Mr. Ray Norton.

200 Club Meeting, West Meon Hut, Hants. Speaker Mr. S. Creighton-Brown.

Mr. John Vile, Wyvern Farms, Somerset. (Ten-member co-op - potatoes and carrots)

Mr. Ron Gillett, Wrentham Vegetable Growers Ltd. Suffolk. With A.D.A.S. officer, Mr. Ivan Clark (Co-op carrots)

Mr. Colin Norman, Manager, Allpress Farms Ltd. Catteris, Cambs. (Co-op carrots) With Mr. Bill Maunder A.D.A.S. officer.

Mr. John Wool, Manager, Fenmarc Co-op, March, Cambs. With A.D.A.S. officer, Mr. Bill Maunder (Co-op carrots)

Southampton Wholesale Market, and offices of Southern Growers and Traders, The Docks, Southampton.

Mr. Willmott, Hillstone Farm, Stanwick, Northants. (Hogs)

Mr. John Parker, Adhurst Farm, Petersfield, Hants. (Vegetables)

Thompson Bros.,Garson Farm, Esher, Surrey. (Vegetables)

Mr. Christopher Thomas-Everard, Dulverton, Somerset. (Progressive farmer and member of vegetable co-op) Note: Large Hydram pump in use.

Rothamsted Experiemtnal Station, Harpenden, Herts.

National Institute of Agricultural Botany, Huntingdon Rd. Cambridge.

Meat and Livestock Commission, Queensway House, Bletchley. and Dr. Ken Baker.

National Institute of Agricultural Engineering, Silsoe, Beds. Mr. J.S. Robinson, Vegetable Mechanisation Specialist.

Grassland Research Institute, Hurley, Maidenhead.

Mr. Hugh Hendy, Water Engineer - installer of Hydram Pumps - Huish Champflower, Somerset.

Mr. Charles Secrett, F.A. Secrett, Ltd., Godalming, Surrey. (Vegetables)

Curtis, Padwick and Co., Winnall Trading Estate, Winchester, Hants. (Machinery manufacturers and traders)

Mr. Robert Glenn and Sons, Ltd., Vegetable Merchants and Growers, Sandy, Beds.

Mr. Simon Watkinson, C.A. Watkinson and Sons, Shere, Surrey. (Vegetables)

Hydram Pumps - Mr. David Tennant, Applications Engineer,
John Blake Ltd.,
Box 43, Royal Works,
Accrington, Lancs.

Agricultural Shows.

Devon Country Show, Exeter, Devon.

Royal Bath and West Show, Shepton Mallet, Somerset.

Royal Highland Show, Edinburgh, Scotland.

Royal Agricultural Show, Coventry.