

Major Activities At Experimental Station In Charlottetown Reviewed

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Introduction

Two properties, the Hurry Farm of 46 acres and the St. Dunstan's lot of two acres, were added to the Experimental Station in 1953, thus making a total of 427 acres now owned by the Experimental Station, Charlottetown. These additional areas will be used for pasture and other investigations.

At the Upton Farm, an addition was added to the loose-housing pole barn and a horizontal silo erected inside. This silo is a self-feeding one and, at the time of writing, twenty steers are obtaining all of their feed, both hay and silage, from self-feeding racks. No roots or grain are being fed.

The Charlottetown station has been selected to specialize in cereal breeding for the Atlantic Provinces and to head up the work. Mr. J. D. E. Sterling, M.Sc., of Nappan, N.S., was appointed earlier in the year as the Agricultural Research Officer in charge. The main breeding work will include varieties resistant to oat varieties resistant to Septoria, common root lodging and barley varieties resistant to loose smut, barley joint worm, barley root rot and lodging.

Many groups of farm people visited the Charlottetown station during the year to attend meetings and Field Days. Numerous individuals also looked over the grounds, stables, poultry department and fields obtaining first hand information on the various projects now being conducted at the station. A conservative estimate places the total number of visitors for the year at 7,000.

Members of the staff attended various conferences and meetings in other parts of the Maritime Provinces and Canada, and the Superintendent visited Great Britain at the time of the Coronation and later visited a large number of Agricultural Research Institutes and a number of private farms. Agriculture in Great Britain was found to be of a very high order and many ideas were obtained from the Research Stations, some of which will be applied and investigated at the local Station.

During the year of 1952 a summary report giving the major findings of the station for the past five years was prepared. This report is now in the hands of the printers and will be available for distribution early in the spring. In cooperation with the Experimental Stations and Farms in the Atlantic Provinces, a special bulletin has been prepared which gives a complete list of recommended varieties of field crops, cereals, and horticultural crops for various zones in these provinces. This report is now being published and it is hoped that it will be available early in the spring and that it will be used as a guide in the selection of suitable varieties of the various farm and garden crops.

The Season

Above average temperatures were recorded during the winter months of 1953 and the coldest day was February 2nd when the thermometer recorded 1 below zero. There were no prolonged cold spells.

The snowfall was below average and frequent thaws kept the ground bare most of the season. Temperatures during the summer months were below the 44 year average, and with higher than average rainfall, the summer was cool.

Precipitation was below average for the months, January to June, but during July and August rain was recorded on 30 days with above average rainfall. The temperatures during the fall season were normal with the exception of the month of November when the average temperature was 5 degrees above the 44 year average. The rainfall was slightly below normal with the month of November recording only 2.30 inches compared to the 44 year average of 3.36 inches.

Aplary

The apary was increased from 60 to 100 colonies during the year, in preparation for a new project in 1954, in which hybrid queens produced at Pelee Island, Ontario, are to be compared with a standard strain of Italian queens.

Cereal Crops

No new cereal variety recommendations will be made for the 1954 season although several unnamed oat strains did show considerable promise in the 1953 field trials. These require further testing.

Acadia spring wheat, which was under large scale production for the first time, has been given high praise by practically all growers. It appears that this variety will soon occupy the majority of the wheat acreage on Prince Edward Island.

Several barley hybrids under study in 1953 have demonstrated high resistance to barley joint-worm. The job remaining is to select and increase those plants which have high yield, strong straw, good threshability and other desired characters.

made in this regard, a disease, known as black stem, is becoming an ever increasing hazard. This disease causes a stem rot which subjects the stem to easy breakage. This type of injury is usually confused with lodging. Breeding for resistance to black stem is hampered by the lack of a resistant parent. An intensive search for such a parent is under way.

Agronomy

Long term Field Husbandry projects, covering soil fertility and cropping practices, that have been under study for the past number of years were continued in 1953. Over 200 experimental plots have been laid down on the Beach Grove Farm during the past three years and more are being added annually as new areas come into the rotation of the recently established projects. The latter are concerned with manure and fertilizer applications to farm crops, and, in addition to yield, the quality of the crop, particularly potatoes, is being studied.

A new project was begun during the year to study the use of rock phosphate in crop rotation. The rock phosphate is applied to swedes in a three-year rotation of swedes, oats, and clover. A comprehensive experiment using liquid fertilizer as a foliage spray for potatoes was conducted. The results indicated that no significant increase in yield was obtained from the liquid fertilizer.

In pasture studies, the grazing of single species of grasses was continued. Orchard grass, meadow fescue, and timothy have stood up well under two years of pasture. Bromo grass, which was a poor catch the first year, has improved somewhat, but still cannot be considered a good stand.

Forage Crops

Variety tests of corn, alfalfa, clover and timothy have been carried on as in 1952. Rhizoma has proved to be one of our best alfalfa varieties, both in green yield and dry matter per acre. This variety has a low crown, and is supposed to withstand intensive grazing, which should make it an excellent pasture alfalfa. The variety Du Pait, grown for the first time in 1953, shows exceptional ability to recover after grazing or clipping, and is being further investigated. In timothy varieties, Climax is outstanding in green yield and dry matter. It also seems to have desirable characteristics for both pasture and hay, for it produces tall stems as well as a thick leafy undergrowth. Although some areas report that Climax is too coarse to produce good hay, this has never been found to be the case in the variety tests.

In a test of red clover planted in 1952, the first year of harvesting showed that Redon, a variety produced at the Ontario Agricultural College, is a very heavy yielder, but produces little after 10 days to 14 days. It is also later in maturity than commercial red clover. It is considerably above average in yield, however, even though it must be considered as a single-cut variety. Lasalle, a relatively new variety, was promising. It was second only to Redon in yield, and matured about the same time as commercial Red Clover. Lasalle is not as upright in growth habit as commercial red clover, however, and could possibly prove difficult if a heavy stand was to be harvested.

In the test of varieties and hybrids of corn for ensilage purposes, Algonquin proved superior as it has for a number of years. The hybrids Canada 275 and Canada 531 also showed promise.

Tests of pasture mixtures have been carried on from 1952, and plans are laid out for a new test to be established in 1954. This will include the best of the old mixtures and several new ones. Attention will be given to the use of birdsfoot trefoil as a pasture on Prince Edward Island.

Soil Laboratory

Field plot and greenhouse tests for the purpose of studying the response of grain to different fertilizer applications were conducted during the year, on several soil types.

The results of these tests over a period of five years have shown that under the average farm practices prevailing in the province substantial increases in grain yields can be expected in response to the application of fertilizer even when the grain crop follows potatoes.

All the formulae used gave a relatively good response on all soils, the results, however, show that the formulae supplying the higher amounts of nitrogen were invariably superior to those relatively low in nitrogen. This would indicate that nitrogen is the most important nutrient element for grain on most Prince Edward Island soils. No marked differences in response to phosphorus and potash were to be noted although the results of the field plot tests indicate a slightly better response to phosphorus than to potash on the O'Leary and Charlottetown soils. No trend was indicated for the Culloden soil. The results further indicate that both phosphorus and potash should be in plentiful supply on all soils, especially where the grain crop is seeded down with a hay mixture including legumes.

During the year, 400 soil samples were received from farmers for soil advisory purposes and fertilizer recommendations. The enquiries regarding soil fertility problems indicate an increasing interest in fertilizer requirements for grain, hay and pasture as compared to some years ago when the interest was mainly concerned with the potato crop.

Illustration Stations

Experiments of a fact-finding nature, involving 974 experimental plots and comprising studies on 160 acres, were under way on the Illustration Stations in Prince Edward Island and two stations in the Magdalen Islands during the year. These stations are so located that research work may be conducted on all major soil types in the province. Field experiments are so designed that information acquired may supplement research work now conducted by the branch experimental farms and, in turn, benefit the individual farmer.

Two additional Illustration Stations, one located at Boisville, Grindstone Island, and one newly established at Portage du Cap, Amherst Island, Magdalen Islands, were placed under the general administration of the Experimental Station, Charlottetown.

Preliminary investigations with respect to soil fertility studies have already been instituted with particular reference to pasture fertilization and potato production. Also, a blight resistant variety of potatoes, was introduced for the first time and proved highly resistant to blight infection in this particular region. A tractor-drawn and horse-drawn horse-hoe was also introduced at the Magdalen Island stations with the view to promote improved cultural practices with respect to the production of tubers, roots and garden crops.

With the view to increase yields of cereals and improve the general quality of grains harvested, Abegweit oats, Acadia wheat and Charlottetown '80 barley were seeded in multiplication plots for the first time at each station. This seed will be available for distribution to neighboring farmers in 1954.

Managed Woodlots

In cooperation with the Department of Industry and Natural Resources of Prince Edward Island, managed woodlots were established at the Alliston, New London and Urbainville Illustration Stations. At the present time, studies in woodlot management are being conducted at five stations and at one other privately owned farm. A woodlot conservation program was initiated by the Experimental Station, Charlottetown, in 1944, when in cooperation with the Dominion Forest Service, managed woodlots were established at Charlottetown, Iona, Rose Valley and Rustico. These managed woodlots feature selective cutting and methods whereby growth may be increased and tree quality improved. The frequently adopted practice of clear cutting in which the young trees, as well as the mature trees, are harvested is considered wasteful and should be avoided.

Coupled with the care of the farm woodlot has been the reforestation of those areas which have been clear cut or where excessive thinning, disease or fire has resulted in an unproductive growth of trees. At the Alliston Station, 3,000 seedlings of red and white pine, and white and Norway spruce were planted in 1953. An area comprising 6.75 acres, once classed as sub-marginal crop land, is now bearing an excellent stand of coniferous trees.

Illustration Field Days

Seven Illustration Station Field Days held during the year attracted a total attendance of 1,000 farmers. A special feature at each Field Day was an address by Mr. F. M. Cannon, officer-in-charge, Entomology Section, Science Service Laboratory, Charlottetown. Mr. Cannon dealt with the life history of "Common Injurious Farm Insects" such as the apple maggot, turnip root maggot, pea moth, carrot rust fly and others and gave farmers first hand information as to how these pests might be controlled.

A special feature of the program at each Field Day was an address to visiting ladies by Mrs. R. C. Parent, Experimental Station, Charlottetown. Mrs. Parent gave her impressions of the British way of life and of the Coronation of Queen Elizabeth II. The true character of the people of Great Britain was forcefully portrayed in the topic of the address "Hearts of Gold".

The appreciation of the Division is extended to the Provincial Department of Agriculture, the Provincial Department of Industry and Natural Resources and the Science Service, Canada Department of Agriculture for their cooperation in making these farmers' meetings interesting and informative.

Pasture Improvement

Improvement of permanent pastures by the use of chemical fertilizers has been an active project on Illustration Stations on Prince Edward Island for a number of years. A steep sloping area comprising twenty acres, and very

subject to soil erosion, has been established to permanent pasture at the New London Illustration Station for over twenty-two years. Pasture fertility studies featuring the recommendations of the Central Pasture Committee have been active at this station for the past ten years.

In 1953, climatic conditions were ideal for the growth of pasture herbage and production reached an all-time high. With continued close grazing by a large herd, and periodical mowing, the percentage of wild white clover has been maintained even on the heavier fertilized plots, at a level approximating 50 per cent of the total pasture composition. Yields of green herbage in tons per acre are listed by plot treatments for 1953 (ten-year average yield appears in brackets). Plot 1: 61 lb. ammonium nitrate annually; 600 lb. super-phosphate plus 100 lb. potash per acre every three years—23.22 (16.24). Plot 2: 600 lb. superphosphate plus 100 lb. potash every three years—18.94 (16.63). Plot 3: 600 lb. superphosphate every three years—20.60 (15.43). Plot 4: 61 lb. ammonium nitrate, 200 lb. superphosphate, 35 lb. potash annually—32.70 (19.70). Plot 5: 61 lb. ammonium nitrate, 600 lb. superphosphate, 100 lb. potash annually—38.97 (23.72). Plots 6 and 6A: unfertilized check areas—20.71 (12.74).

Fertility Experiments

Pasture fertility experiments in progress at Alliston, Monticello, Rose Valley and O'Leary have shown that light rotted manure applied at 10 to 15 tons per acre once every three years, have not only encouraged the establishment of wild white clover, but have served to prolong the grazing period during dry periods. Early spring application of a complete fertilizer has given the highest production of pasture herbage over a four-year period.

Where permanent pastures are established on lowlying areas, poorly drained, fall applications of fertilizer may be found more desirable when machinery can be utilized to advantage. Hand in hand with light manual treatments and the application of commercial fertilizers is the careful management of permanent or rotational pastures. Illustration station operators have found close grazing very essential for the establishment and production of wild white clover.

Where livestock fail to keep the pasture properly grazed, particularly in early spring, periodical mowing has been a general practice. Experience has proved that, where pastures are undergrazed and where grasses are allowed to shoot into head, production of herbage is greatly reduced and the resultant pasture forage is not relished by livestock. If mowing of pastures is found necessary, this operation should be completed before a hard stubble forms as the sharp ends of grass stubble prove objectionable to livestock and they are likely to graze only on the more tender forms of herbage. Periodical mowing not only discourages the development and spread of noxious weeds but also facilitates the establishment and production of natural wild white clover so highly relished by cattle.

Poultry

The two main projects reported last year are still in operation—“The Feasibility of Selection Based on Progeny Testing” and “The Evaluation of the Egg Laying Capacity of the New Breed Developed at Ottawa, namely, the Broad Breasted White”. Both are co-operative projects, the former being conducted at six centers stretching across Canada from Charlottetown, Prince Edward Island, in the East to Agassiz, B.C., in the West. In the first project where White Leghorns are utilized, several points are becoming apparent: eggs production over a three year period is slowly increasing—laying house mortality seems to be decreasing, and there is a definite indication that environment has a bearing on production apart from the genetic constitution of the bird. This is demonstrated through the use of the same strains at several different stations. These strains usually hold the same relative position in respect to production at all stations, but the average production of each strain varies considerably between stations.

Work with the Broad Breasted White breed continues and, while production has not been outstanding, their quality from the dressed bird standpoint merits consideration.

Horticulture

Tree building studies were begun at Charlottetown after the severe winter of 1953-54 when many apple varieties were badly injured or killed. Since many of the trees injured sustained mostly trunk injury, it was decided to attempt the building of harder trees by using intermediate stems, thus, hardy crab stocks were grafted to varieties known to be hardy and these top-worked at the age of about five years to more tender varieties, such as, Macintosh Red and Red Delicious.

Four outside orchards were used in this experiment situated at Alliston, Belle River, Central Bedouche and Vernon. The Alliston orchard is the only one where more than one intermediate stock is used. The other orchards are grafted to Hibernial only. The Alliston orchard consists of some two acres and is divided into two sections, one section being devoted to intermediate stock studies. The stocks used are Hibernial, Osman and Antonvka. These were grafted to Red Delicious and Macintosh Red. A few Sandows and other varieties are included.

The growth of all top-work grafts on the Hibernial stock are satisfactory and we consider this stock to be very suitable for most varieties as grown in Prince Edward Island. The Osman has not



IN CIVIES — Marshal Klementi E. Voroshilov, chairman of the Presidium of the Supreme Soviet of the U.S.S.R., wears civilian clothes as he poses for his latest portrait. Long a military hero, his position is comparable to president of Russia.

given as good results as Hibernial and we do not consider it to be a good stem builder for most varieties.

It is recognized that chemical weed killers are now playing an important part in our war against weeds. When these are combined with sound cultural practices, they undoubtedly have a definite place in our weed control program. Weedicides available today are more or less of two kinds: those that are non-selective, and those that are selective. The selective agents are mostly of recent introduction. Within these two groups, a further division may be made classifying the different materials into pre-emergence types and post-emergence types. The weed work in horticulture at Charlottetown is not extensive but some experiments of considerable importance have been carried out. The most extensive work has been done with Granular Calcium Cyanamid. The vegetables used in this experiment were:

Beets: Beans, Peas, Corn and Potatoes—Different rates and times of application of cyanamid were used. The response was variable but the only vegetable directly injured by cyanamid was beets.

In general the rate of 400 pounds of cyanamid per acre appeared the most satisfactory for germination, growth, yield and weed control of the different treatments. The one where the ground was prepared five days before seeding, and the weedicide applied immediately after planting, gave the best results. The yield response was variable but beans and corn appeared to receive benefit.

A new project using the most favorable treatment of calcium cyanamid and auro sodium cyanamid (X-10) was begun in 1953. The vegetables used were: Beets, beans, corn and potatoes—All vegetables in this experiment germinated satisfactorily except beets which failed to germinate readily under the calcium cyanamid treatment. One year's results would seem to indicate that the X-10 material favors beans and beets and that Granular Cyanamid corn and potatoes. Weed control was satisfactory.

In 1952 a few trials using sodium cyanamid X-5 were carried out on cruciferous plants. Weed control was poor but the crop plants were uninjured.

Varzol trials, both pre-emergence and post-emergence, were carried on for several years. The following vegetables were used in this experiment:

Beets, beans, peas, corn, potatoes, carrots, parsnips, onions, cabbage and cauliflower—Pre-emergence treatments retarded or destroyed germination of all vegetables except carrots, parsnips, and

to a lesser extent onions. Weed control was poor. The same experiment using varzol as a post-emergence application gave good weed control but again favored only carrots and parsnips, onions not being too satisfactory.

Peas—Three materials were used as weedicides on peas in 1953. These were: Calcium Cyanamid Special Grade, Dow's selective, and Granular Calcium Cyanamid. The first two as post-emergence applications and the Granular Calcium Cyanamid as a pre-emergence. Dow's selective gave the best control of weeds but vine growth was unequal to Granular Cyanamid.

Cucumbers: Alanap-1 and Alanap-3 (Naphthyl Phthalamic Acid) were used in 1953 on closely planted cucumbers. These were used as pre and post-emergence sprays. The rates in each case were five pounds per acre.

Alanap-1 and Alanap-3 appear to control weeds quite effectively. No injury to germination was evident and growth was excellent. When used as a post-emergence, vine growth was stunted and weed control poor.

Granberries: A large number of weedicides have been tried on granberries but the only satisfactory ones to date appear to be Keroseene and Varzol. Keroseene, however, has only limited value as it controls chiefly brown top and stunts, but does not eliminate most other grasses. Varzol has proven to be a reliable weedicide under most conditions. The rate to apply depends much on the age of the vines and the amount of grass and weeds present.

Amounts of 200 gallons per acre of varzol are satisfactory for new stands but 300 gallons or more are required for heavy grass. The plants must be dormant or else bud injury will occur. Varzol, used in conjunction with commercial fertilizers, will retard grass and weed growth and greatly stimulate vine growth and production.

Blueberries: Some weedicide work has been done on blueberries, chiefly with Ecteron 245. This material controls bayberry quite effectively as a spot spray and appears to be giving some control of sweet fern and other hardwood plants. The most serious and hard-to-control weed in our blueberry barrens is now Lambkill. No satisfactory control has not appeared.

Animal Husbandry

A self-feeding horizontal silo is being tried out at the Upton Farm this year. It was constructed in

the pen barn and was filled with second cut grass, mainly Orchard grass, alfalfa and Red clover, stored long, with molasses as a preservative in the lower half of the silo. Twenty-two steers are housed in the section of the barn containing the self-feeding silo and are also being self-fed hay. All that is required to look after them is to bed them which only takes a few minutes each day. The silo has been open for about three weeks so it is too early to draw conclusions on its operation. However, early impressions are that it will be satisfactory. If you are interested, drop in at the Upton Farm and see the silo in operation.

Grass silage was stored in two horizontal silos and chopped in two upright and one oneflow silo. Molasses was used as a preservative in one horizontal and in one upright silo. The others did not receive preservative.

A project to determine how much, if any, hay should be fed with grass silage to dairy cows was conducted last winter. The results indicate that cows will consume more total digestible nutrients (T.D.N.) which results in greater milk production when some hay is fed with the silage. This project is being repeated this winter to get more information and to determine the effect of an all silage ration on the butterfat test.

Ayrshire Herd

The Ayrshire herd has increased from 76 head this time last year to 106 head at the present time. An extension was built to the pole barn at Upton to accommodate this increase and 52 head are presently housed in this loafing barn. The extension has a few improvements in construction over the original barn. One change was to raise the back wall giving more room for feed storage. Logs from our own woodlot were treated with a commercial wood preservative and used for the frame-work of the barn. The exercise yard was paved with concrete as it was found the light paving of granite chips and tar used in the old yard would not last.

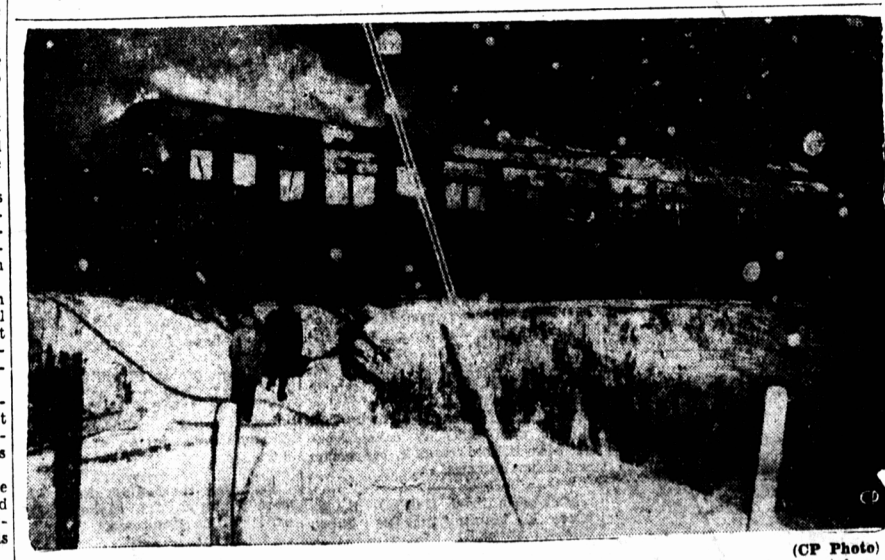
All the cattle in the herd are dehorned. Calves are dehorned when a few days old using an electric dehorner. We have found this dehorner satisfactory in every way and recommend it wherever electricity is available. Another herd management practice we recommend is the vaccination of heifer calves for contagious abortion or Bang's disease. This practice not only protects the health of the heifers kept in your herd but also considerably increases the



EIGHT SAFE AFTER RCAF PLANE CRASHES IN ALEUTIAN ISLANDS
Sqn.-Ldr. C. E. Hare (above) of Montreal and Toronto, was one of six RCAF crewmen and two passengers who escaped serious injury when an RCAF North Star transport plane crashed on a runway at the Shemya airfield in the Aleutian Islands. Although details of the crash were sketchy, the plane was reported to have been heavily damaged. The four-engined North Star, attached to the 426th "Korean Air-lift" Transport Squadron, based at Dorval, Que., was on a regular flight between Montreal and the Far East.

value of sows sold outside the province whether purebred or grades. The project comparing mixtures of grasses and legumes for pasture was continued. Of special interest is the improvement of the check (which was on old sod mainly brown top) brought about by fertilization and close grazing. An area adjoining this plot has received no fertilizer and has not been grazed. The difference between these two areas is remarkable.

Four young bulls are being progeny tested using artificial insemination to study the feasibility of progeny testing a limited number of bulls with a limited population of females. These bulls will be proven in four years time when their daughters come into production. The conception rate achieved by artificial insemination has been equal to or better than that achieved by natural service averaging 66% non-returns to first service for the first ten months of the year. For the month of June the non-return rate was 94%.



ONE KILLED, 18 ESCAPE — One man was killed and 18 other passengers escaped into the sub-zero cold when fire broke out in a pullman on Canadian National Railway's westbound transcontinental flyer near Pembroke, Ont. Police held Charles Faucault of Noranda, Que., for mental examination after he told them he fell asleep in his compartment with a lit cigarette in his hand. All but one of the trapped passengers jumped through a window smashed with a travelling bag.

Train Tragedy Mars Yuletide Festivities in New Zealand



Shattered coaches are seen resting in the swirling waters of the North Island New Zealand river at Tangawari after a holiday train swept down river for a mile by the current. Six cars and the locomotive of the express train, which was carrying 250 holidaymakers, crashed into the mountain river shortly after the bridge was washed away by flooded river, swelled by cloudbursts.