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Announcements and Reports of Progress of Work in the Departments of Agriculture, Forestry, Horticulture and Entomology

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No.

DAKOTA
AGRICULTURAL COLLEGE,
BROOKINGS, DAKOTA.

Bulletin No. 4.

JULY, 1888.

ANNOUNCEMENTS AND REPORTS OF PROGRESS OF WORK IN THE
DEPARTMENTS OF
AGRICULTURE, FORESTRY, HORTICULTURE AND
ENTOMOLOGY.

OFFICERS OF THE
Experiment Station.

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EXPLANATION.

This bulletin of the Dakota Experiment Station is simply a mid-summer report of progress and an announcement to the farmers of the Territory of the experiments that are receiving attention. When the season closes, bulletins will be issued stating in detail the methods of the experiments, and so far as possible all reliable results.

Most of the experiments are for the purpose of throwing light upon the relations of our climate to various kinds of cereals, forage crops, fruits and garden vegetables.

Any farmer in the territory who desires the bulletins of the station can have them mailed free to him by sending in his address. The press of the territory can do a favor to the station and to the people by giving this notice wide publicity.

Correspondence is also invited upon any question relating to farm interests. Questions relating to farm crops or stock should be addressed to Professor Foster; questions relating to tree culture or to gardening should be addressed to Professor Keffer; questions relating to insects should be addressed to Dr. Orcutt; questions concerning the chemical composition of soils or waters should be addressed to Professor Shepard, and questions about the diseases of animals and their treatment should be addressed to Dr. Alloway,—all at Brookings, Dakota.

Department of Forestry and Horticulture,

CHAS. A. KEFFER, Superintendent.

The work of this department thus far has been largely of a preliminary nature, and in order to reach the most valuable results it will be necessary to extend the experiments and observations over a number of years. There is printed herewith a list of the various trees, plants and seeds with which the year's work has to do. Later bulletins will contain the methods of planting and culture followed, and results will be noted wherever they have been reached.

The spring was most favorable for extensive planting, being wet and backward, but the weather was not at all favorable to that early growth which is so much to be desired in tree culture.

THE EXPERIMENTAL ORCHARD.

An orchard containing between three and four acres was planted last spring. The growth of the various fruit trees will be carefully noted, and in due season a bulletin will be issued containing a full report of culture, management, hardiness, quality, etc. New varieties will be added as rapidly as they can be secured. This orchard has been established with the one object in view of testing varieties under such culture as any farmer in the territory would be able to give.

In all cases—failures as well as successes,—results will be published, for it is believed that there is oftentimes as much gained by knowing what not to plant, as in being able to secure good varieties.

PLUMS.—Desoto, Forest Garden, Van Buren, Miner, Wolf, Milton, Wild Goose, Rare Ripe, Hawkeye, Winnebago, Crescent City, Harrison's Peach, Golden Beauty, Rollingstone, Esther, Speer, Chas. Downing, Wyant, Rockford, Weaver, New American, Owatonna, Moldavka, Black Prune, Early Red, White Nicolas, 19 Orel, 20 Orel, 21 Orel.

Note.—The last seven varieties named were imported from Russia by Professor J. L. Budd, of the Iowa Agricultural College.

CHERRIES.—(Russian and German varieties, imported by Prof. Budd.) Brusseler Braune, Lithauer Reischel, Ostheim, Vladimer, Lutovka, No. 62.

PEARS.—(Russian varieties from Prof. Budd.) 4 M. Dula, 392, Kurskaya, 347 Gakooskaya, 508 Bessemianka, 391 ———, 418 Early Bergamot, 9 M. Winter.

APPLES.—316 Red Reinette, 290 Ukraine, 245, Borovinka, 190 Tiesenhausen, 985 Red Anis, 10 M. Ukraine, 261 Repka Aport, 29 M. Melonen, 159 M. Crooked Spike, Babuschino, 324 German Calville, 413 Cross, Antonovka (Vilne), 25 ———, Switzer, 257 Arabka, 24 M. Sandy Glass, Thaler, 378 Hiberna, 6 Vor. Cinnamon Pine, Red Aport, 284 Kremer's Glass, 482 Green Butskaya, 7 M. Osimoe, 252 Aport, 300 Rosy Repka, 277 Vargul, 230 Titovka, Antonovka, Posart's Naliv, Green Aport, 17 M. Kruder, Skrush apfel, 327 Yellow Arkad, 413 Cross, 23 W Aport, 469 Grandmother (Babuschino), 157 White Naliv, 20 M. Kursk Reinette, 157 M. Broad Green, Bogdanoff White Aport, 225 Getman's Bean, 361 Pointed Pipka, Repka Winter Bogdanoff, 65 M. Krimskoe vosduchnoe, 1277 Rosy Voronesh, 177 Green Streaked, 4 M. Ostrokoff, 429 Borsdorf, 379 Revel Pear, 252 Aport, Anisovka, Lowland Raspberry, Charlamoff, Longfield, Yellow Transparent, Moscow, Early Champaigne, 20 ——— (from Gideon), Patten's Duchess Seedlings Numbers 3 and 4, Patten's Russet No. 1, Patten's Arthur, Ludloff's Okabena, Russet Hybrid, Duchess, Wealthy, Whitney's No. 20, Gideon, Port Wine, Late Duchess, Ontario, Gideon's No. 25, Gideon's No. 2, Gideon's No. 28, Bushy, Peter, Excelsior, Lou.

(Note.—Both name and number are printed for the Russian sorts, so that anyone who has received any of the Russians in this list by number only, can here find the name. The nomenclature is that of Chas. Gibb as published in the American Pomological Society's Report for 1887. The grafts, noted later, are named from the same source.)

Crab Apples.—Lake Winter, Spitzenburg, Looker's Winter, Gen. Gregg, Richland Winter, Dartt's Hybrid, Greenwood, Martha, Virginia, Transcendant, Early Strawberry, Briar Sweet, Hyslop, Shields, Elgin Beauty.

GRAFTS.

In addition to the fruit trees named above, scions of the following named Russian apples were secured. As we had no cellar in which to store grafts, the work was delayed until April, when the grafting was done by members of the Freshman class of the College, as a part of their regular lessons in Horticulture. It was necessary to move the grafts twice after they were first packed. This will serve to explain the poor stand secured.

VARIETIES.—Ostrouskoe, 98, 151, Sugar Miron, Cardinal, 242 Broad Cheek, 437 Saxonian, 290 Ukraine, 245 Borovinka, 61 Noble Redstreak, 256, T. 15, 269 Rosy Aport, 350 Lapouchoc, 322 Cinnamon, 444 Lubsk Reinette, Bowery, 540 Kilkidon, 407 Blackwood, 330 Streaked Naliv, 475 Shepherd, 140 M Czar's Thorn, 264 Scented, 599 Romenskoe, T. 21, 971 Basil the Great, 38 Vor. Flat Voronesh, Antonovka, 190 Tiesenhausen, Moscow, Bellordoskoe, 280, 462 Green Rubets, 864 Smoky Arkad, 148, 25, 387 Good Peasant, 365 Vorgunok, 215 Kustoe, 6 Simbrisk, 432, 413 Cross, 455 Berry, 200 Rosy Pipka, 940, Gaine's Swedisher, 382 Green Butskaya, 599 Romenskoe,, 442 Yellow Calville, 980 White Plikanoff, Plodovitka, 984 Kursk Anis, Red Transparent, 22 M. Biushed Calville, 367 Red Streak, 4 Simbrisk, 105 Russian Gravenstein, 457 Kluevskoe, 10 Simbrisk, 2 Simbrisk, Red Serinka, 6 Vor. Cinnamon Pine, 304 Switzer, Gruchevka, 198 Polumiron, 202 Hare Pipka, 20, Shining Aromatic, 246 Prolific, 186 Revel Glass, 1260 Red Raspberry, 178 Barloff, 252 Aport, 982 White Skrute, 962 Muscatel.Reinette, 66 Vor. Pear apple, 230 Titovka, 327 Yellow Arcad, 987 Yellow Anis, 379 Revel Pear, 385 Bode, Garden, 185 Anesovka, 343 Red Wine, 70 Winter Pear, 57, 1277 Rosy Voronish, White Transparent, 262 Cbarlamoff, 461 Ribbed, T. 20, 206 Czar's Thorn, 286 Kremer, 599 Romenskoe, 371 German Skrute, 311, Anis, 316 Red Reinette, 377 Yellow Lemon, 169 Green Sweet, 9 Simbrisk, 463 Pipka Postilnaya, 9 Vor., 252 Aport.

SMALL FRUITS.

An effort has been made to secure enough of each variety of the different small fruits to give a thorough test as to quality, hardiness, strength of growth, etc. All of the varieties of the various fruits are receiving the same care, and are growing under similar conditions, so that in all cases their relative merits may be apparent.

RASPBERRIES.—Turner, Brandywine, Cuthbert, Wild Red from Bottineau County Dakota, Philadelphia, Shaffer's Colossal, Doolittle, Gregg, Mammoth Cluster, Souhegan, Ohio, Johnson's Sweet.

STRAWBERRIES.—Cumberland, Wilson, Chas. Downing, Green Prolific, May King, Red Jacket, Sharpless, Glendale, Manchester, Countess, Windsor Chief, Crescent, Mt. Vernon, Captain Jack, Suck-er State, Belmont, Indiana, Prince, Jumbo, Kentucky.

CURRANTS.—White Grape, White Dutch, Red Dutch, Victoria, Cherry, Fay's Prolific, Native wild black from Botteneau County.

GOOSEBERRIES.—Houghton, Chas. Downing, Industry, Mountain Seedling, Native from Botteneau County.

OTHER SMALL FRUITS.—Native Sand Cherry from McCook County, Native Dwarf Juneberry from Botteneau County, Windom Dewberry, Stone's Hardy Blackberry, Native Buffalo Berry from McCook County.

GRAPES.—The College grounds offer no very favorable location for a vineyard. Six vines of each of the following varieties have been planted. A large addition will be made to this list next spring.

VARIETIES.—Janesville, Agawam, Salem, Prentiss, Pocklington, Lady, Worden's, Hartford Prolific, Brighton, Ives Seedling, Martha, Merrimac, Moore's Early, Delaware, Niagara, Concord, Roger's No. 9.

FORESTRY.

Last October a plat of between two and three acres was planted to forest tree seeds. The different kinds were planted in irregular groups, in hills four feet apart, the intention being to have the trees stand permanently where the seed was sown, and it was thought by grouping the different varieties, a mixed grove might ultimately be obtained, which would be similar to the natural woodlands of the east. All of the varieties planted save hickory, basswood and black locust germinated this spring, but many of the seedlings were killed by cut-worms while very young. It is thought, however, enough remain to insure the success of the experiment. The vacant spaces may be replanted this fall. Varieties used: Box elder, white ash, black wild cherry, honey locust, white oak, burr oak, red oak, black walnut, white walnut or butternut, chestnut, hard maple, shell bark hickory and black locust.

The following varieties of seedling trees, in quantities from 200 to 2000, were secured last spring, and have been grown in nursery rows this season. The evergreens were heavily mulched with straw, and have been very successful thus far. They were mostly from four to ten inches high when planted, and have made a growth of from one to three inches. In the spring a forest plantation of five acres will be planted, using the trees which have been grown this season in the nursery.

VARIETIES.—European larch, yellow birch, black wild cherry, European white birch, box elder, white ash, white elm, cottonwood, soft maple, white walnut, black walnut, white oak, basswood, Scotch pine, white spruce, Norway spruce, balsam fir, Colorado blue spruce, Douglas spruce, arbor vitae, white pine, red cedar, Black Hills native spruce, Black Hills native pine, hemlock, red pine, gray pine.

EXPERIMENTS IN THE GERMINATION OF FOREST TREE SEEDS.

At the time of planting the forest tree seeds last October, a quantity of seeds of several of the varieties used—principally box elder and native white ash—were mixed with sand, boxed, and exposed on the north side of the main College building until the spring was well advanced when they were planted in nursery rows. The box elder and ash germinated, and I judge all grew. The oaks, walnuts and hickories failed to germinate. I think probably they would have grown had they been planted earlier in the spring.

This spring a number of varieties of seeds, named below, were purchased, but were not delivered until late in April. They were soaked in cold water 24 hours except the locust, on which boiling water was poured. They were then planted by the side of the seeds which were kept in sand over winter. Very few of the soaked seeds germinated, and with the exception of the honey locust, all are now dead. The varieties used were white ash, box elder, sugar maple, blue ash, European ash, black ash, European basswood, American mountain ash, basswood, honey locust, mountain maple, white thorn, choke cherry, black wild cherry.

CUTTINGS.—A barrel of cuttings, of varieties named below, was presented to the department by Mr. James Smith, of Cresbard, Faulk county. They arrived before the ground could be prepared, and were kept in a root cellar. When the ground was in good condition they were soaked in water 48 hours, and planted in subsoiled rows. All have grown well save a few which were very thin and weak, having been taken from slender twigs. The varieties planted were laurel leaved willow, and the following named poplars: *Populus certinesnis*, *P. pyramidalis*, *P. nolester*, *P. pyramidalis suaveolens*.

A number of cuttings of the poplars named were stuck along the creek which flows through the College farm, one bend being planted full of them. An examination made July 17 shows that many buds started but few have lived. The land had never been broken, and the cuttings were stuck just after a heavy rain. The place is now covered with high grass.

GARDEN.

The garden has been managed for the purpose of testing a number of each of the garden vegetables, with a view to finding a superior list for culture in this region. A bulletin will be issued containing methods of planting and culture, and comparative results secured.

Following is a list of the kinds of seed planted:

LETTUCE.—Bloomsdale Reliable, Hanson, Curled India, Early Curled Silesian, Landreth's Earliest Cutting.

CABBAGE.—Extra Early Jersey Wakefield, Henderson's Early Summer, Flat Dutch, Premium Flat Dutch, Marblehead Mammoth,

Red Dutch, Fotler's Improved Brunswick, Warren, Hard-Heading, All Seasons.

PEAS.—Landreth's Extra Early, Early Philadelphia, McLean's Advancer, Eugenie, Stratagem, Yorkshire Heros.

RADISH.—Long Scarlet Strap leaf, Market Gardener's Long Scarlet, French Breakfast Deep Scarlet Turnip, Chartier, White Vienna.

BRETS.—Early Egyptian, Eclipse, Early Blood Red.

BEANS.—Landreth's Scarlet, First in Market, Brown Speckled Valentine, Ferry's Detroit Wax, Dwarf Golden Wax, White Wax, Dwarf German Wax.

SPINACH.—Bloomsdale Savoy Leaved, Long Standing.

SALISFY.

Parsley.—Fern Leaved, Double Moss Curled.

ONION.—Red Weathersfield, Silver Skin, Extra Early Red, Yellow Danvers.

TURNIP.—New Early White Egg, Earliest Bloomsdale.

OKRA.—Dwarf, Long Green.

PARSNIP.—Sugar, Bloomsdale, Hollow Crown.

CARROT.—Chanteney Scarlet, Extra Early Forcing, Long White, Belgian, Early Scarlet Horn, Danver's Half Long, Long Orange.

TOMATOES.—Livingston's Beauty, Livingston's Acme, Vaughan's Alpha, Vaughan's Advance, Vaughan's Early Conqueror, Ferry's Extra Early, Ferry's Conqueror, Livingston's Golden Queen, Vick's Hubbard's Curled Leaf, Department of Agriculture Bermuda, Vick's Gen. Grant, Livingston's Perfection, Livingston's Potatoe Leaf, Dwarf Champion, Boston Market, Livingston's Favorite, Vaughan's Turner's Hybrid, Landreth's Peach, Canada Victor, Ferry's Optimus, Livingston's Paragon, Landreth's Bermuda.

CUCUMBERS.—Landreth's Choice, Early White Spine, Jersey Pickle, Boston Pickle, Long Green Turkey.

CORN.—Early Minnesota, Corey, Stowell's Evergreen, Amber Cream, Egyptian, Stabler's Early.

SQUASH.—Marblehead, Early Prolific Marrow, White Bush Scaloped, Sumner Crookneck, New Egg Plant, Sibley, Essex Hybrid, Hubbard.

PUMPKIN.—Cheese, Cashaw.

EGG PLANT.—New York Improved, Large Purple.

CELERY.—Henderson's White Plume, Henderson's New Rose, Boston Market, Henderson's Half Dwarf.

PEPPERS.—Bull Nose,

Agricultural Department.

LUTHER FOSTER, Superintendent.

The following is hardly more than a catalogue of the Agricultural Department of the Experiment Station as giving some notion of what is being done, and an intimation of the reports to follow at the close of the season.

CORN.—The corn experiments cover thirty-nine plats, each containing sixty rows, twenty-four hills in length. Thirty-three of these plats were planted with different varieties of corn, eighteen of dent and fifteen of flint and the rest were used for experiments in deep and shallow cultivation and depth of planting.

The planting began the seventh of May and two rows of each plat were planted every day, Sundays excepted, for thirty days.

The stand is quite irregular, resulting in some cases from poor seed and in others from the work of ground squirrels.

While the early part of the season was not favorable for corn, at present all the plats are doing excellently and the prospects are good for many varieties reaching maturity by the first of September.

Dakota grown seed was obtained for this experiment as far as possible.

The following is a list of the kinds planted.

Some of these are no doubt the same varieties with different names.

DENT VARIETIES.—White Rustler, Chester County Mammoth, Illinois Premium, Clearance Yellow, Wason's Yellow, Dakota Yellow, Hickory King, Austin's Yellow, Pride of the North, Improved Leaming, Bloody Butcher, North Star Yellow, Dakota Gold Coin, Edmund's Premium, Davis' Yellow, Golden Dent, Davis' White, Austin's Calico.

FLINT VARIETIES.—Smut Nose, Self-Husking, Chadwick, Mercer, Washakum, Angel of Midnight, King Phillip, Silver White, Minnesota White, Mandan Indian, Early Six Weeks, Compton's Early, Topover, Early Canada, Longfellow.

GRASSES AND CLOVERS.

Thirty eighth-acre plats, have been sowed with grasses, clovers and mixtures. These have all been sown without grain. Still other pieces were sown with grain to compare methods of seeding. The drives and walks have been kept free from weeds by cultivation. Aside from this it has been the aim to make the conditions as nearly as possible the same as those of a farm field.

The following is a list of the kinds that have been sown:

GRASSES.—Kentucky Blue, Orchard, Red Top, Timothy, Italian Rye, Meadow Fox-Tail, Rhode Island Bent, Herd Fescue, Crested Dog's Tail, Sheep's Fescue, Meadow Fescue, Tall Meadow Oat, Wood Meadow, Creeping Bent, Yellow Oat, Perennial Rye, Rough Stalked Meadow, Wood Fescue, Sweet Vernal, Johnson Grass.

CLOVERS.—White, Red, Crimson Trefoil, Yellow Trefoil, Mammoth Red, Alsike, Sanfoin, Alfalfa, Sweet White (Melilot.)

SMALL GRAINS.

These are principally in eighth-acre plats. Some were sown broadcast, others drilled and cultivated, and still others were put in with the press drill.

The following are the varieties sown:

WHEAT—Blount's Hybrid No. 10, Blount's Hybrid No. 15, Blount's Hybrid No. 17, Blount's Colorado or Seven Headed, Blount's Rust Proof, Peerless, Pringle's Grandee, White Russian, French Imperial, French Imperial No. 2, Pure Scotch Fife, Wellman's Saskatchewan, Russian Fife, Velvet Chaff, Champlain, China Tea, Ladoga, Saxonka, Golden Drop, Kubanka.

OATS.—White Surprise, Brunswick, Black Tartarian, No Name, Dakota Chieftan, Golden Russian, White Victoria, Victoria, White Bonanza, Holstein, Welcome, Improved Welcome, Hargett's White, Black Norway, New Black Russian, Egyptian, American Banner,

Pringle's Progress, White Belgian, Race Horse, Badger Queen, Wide Awake, Dakota Gray.

BARLEY.—Manshury, Wisconsin Manshury, Imperial Hybrid, New Black, Highland Chief, Black Hulless, White Hulless, Chevalier, Melon, Four Rowed, No. 3, Two Rowed, Danish, Imperial.

BUCKWHEAT.—Common, Silverhull, New Japan.

RYE.—Spring.

FORAGE PLANTS.

The following is a list of the early and late varieties under experimentation.

MILLET'S.—Golden Wonder, German, Common, Hungarian, Pearl.

FODDER PLANTS.—Kaffir Corn, Brown Houra, Tcosiute, Milo Maize, Brazilian Flour Corn.

FIELD PEAS.—White, Scotch, Canada, Prince Albert.

POTATOES.

All varieties of potatoes were planted within a few days of each other and none earlier than the twentieth of May.

Prof. Porter, director of the Minn. Experiment Station presented the College with his collection, consisting of three hundred varieties. Of these from three to ten tubers of a kind were planted.

In addition to this collection a number of choice varieties, in quantities of peck each, have been planted.

Various methods of preparing the seed as well as a comparison of the profits of potato growing with that of other crops are also included in the work.

PROF. PORTER'S COLLECTION.—Startler—Seeding No. 2, Hinman, Rural Blush, LaPlume, Gem, Mammoth Pearl, Colebrook, Early Ohio, Ben Merritt, Jumbo, Ft. Helena, Maiden Blush, Ohio Kidney, Cullock, Baldwin, Yorkshire Hero, Black Prince, Belle, Pucker, Dak. Red, Seedling Peachblow, Greenfield, Wall's Orange, Blue Western, Titicaca, Stonehouse, Temple, Early Indiana, Banks, Bell, Old Flesh-Colored, Barrow's Perfection, Pride of America, King of Potatoes, Early Rose Seedling, Matchless, Early Kidney, Lapstone Kidney, Breakfast, Adriondack, Empire State, Scotch Blue, Patterson's Albert, Early Blue, Busam's Early, Orono, King of Jacksons, Early Telephone, Benzie's Seedlings, English White, Frenches Seedling, Early Rasehorse, Early Snowflake, English Rose, Gilman, Porter's Excelsior, Ashleaf Kidney, Early Queen, Cayuga, Chinery, Jumbo Cutters Seedling, Empire, Wilson, Palmers, Prince Teck, Old Kidney, Oneida, Amazon, Early Market, Golden Gem, Seedling Prolific, Missouri White, Hamilton, Bountiful, Lady Finger, Champion of America, Red Mink, Garfield, Early Lilac, Hickory, Busan's Late Prime, Lush

Duke of Cumberland, Excelsior, Early Scotch Cottage, East Branch, Field Crop, Grey Russet, Brinlick, Prince Edward, Hyde's Seedlings, California Purple, Red Orange, Marjolin Cetard, Ohio Pinkeye, Prof. Wallis' Kidney, Agawam, Acme, Macpen's Bowen, Climax Pearl of Savoy, Rose of the West, Red Kidney, Massachusetts White, John Bright, Brooks, Potaka, Late Pinkeye, Garnet Chili, White Apple, Early Harvest, King of Sweden, Mikado, Giant, South Bend, St. Patrick, Calico Early Durham, Early June, Burkley's Seedling, White Rose, Berkshire, Golden Gem, Excelsior Kidney, Canover, Hayes' Supberb Kidney, Beauty, Neshannock, Jackson White, Patterson's Victoria, Calico, Gilbert's Seedling, Conover, Pigeon Eye, Cornell's Kidney, Ohio Beauty, Extra Early Vermont, Gideon's Seedling, Bellaire, Patterson's "The Queen," Lackawana, White Elephant, Dr White, Strawberry, Colorado No. 2, Campton, Napoleon, Early Manly, Collum's Seedling, White Lily, Blue Kidney, Early Favorite, Palmer No. 1, Eureka, Ruby, Sutton's Redskin, Rochester Seedling, Augola, Purple Peerless, Concord, Early Rose, Brownell's Superior, Gen. Grant, Kansas, Harrison, Vermont Seedling, Muldoon, Ice Cream, Early Prince, Starch, Red Peachblow, Fox Seedling, King of the Earlies, Black Diamond, Chicago Market, Davis Seedling, Globe, Willard, Dunmore, Mountain Blue, Noblow, Queen of the Valley, Paragon, Bonanza, Early White Mountain, Early Pinkeye, Red Climax, Early Peach Blow, Eclipse, Bradford Seedling, Burbank, North River Beauty, Black Mercer, Early Golden, Tioga, Presidiur, Sutton's Exhibition Kidney, Pecan, Early Sovereign, Rocky Mountain Rose, Early Six Weeks, Fresh American, Fenni's Perfection, Patterson's Blue, Brownell's Success, Western Chief, Wonderful Red Kidney, White Star, Guernsey, Red Jacket, Earley Essex, Early Shaw, Huntington's Seedling, Topeka, Badger, Rose of Erin, Wm. R. Prince, Foster's Late Rose, Imperial Green, Extra Early Seedling, New Jersey, Gant, Mecca Pinkeye, Raspberry Leaved, Cusco Seedling, Shaker's Fancy, California, Sedila, Brumballs No. 4, Rough and Ready, Fenni's Early White, Patterson's Regent, Harlequin, Tuldon's Prolific, Silver Skin, Telephone, London White, Snow Flake, White Eye Peach Blow, New Kidney, West Windsor, Late Rose, White Rock, Pierce's Seedling, California Market, El Paso, Scotch White, Model, Connecticut Blue, Blanchard Red Sun, Brownell's Best, Plymouth Rock, Motley, Samantha Ann, Chilli No. 2, White, White Cowhorn, Early Sunrise, Rosebud, Snowball, Peachblow, Manchester, James Vick, Rosy Morn, American Giant, Vanderveer, Buckeye, Campbell's Late Rose, Roxberry, White Trout, Palmyra, Minnesota Seedling, Tyrian Purple, Blue Neshannock, Centennial, Clark's No. 1, Karl's Household, Columbus, Forest Rose, Rand's Red, Phillbrick's Early White, Alaska Blue, Ashleaf Fluke, Cowhorn, Nigger Head, Tennis Early Market, Snip Dragon, Dykeman, Whipples Seedling, Early May Flower, Tenn's White Siding, Iron Clad, Alex. Prolific, Empire State, Golden Beauty No. 1, Golden Beauty No. 2, Triumph, Polari's, Michigan Rose, Clark No. 2, Sunrise, Queen of the West, Jones' Seedling.

CHOICE VARIETIES.—(One peck of each.) Ohio Junior, Empire State, Early Maine, Beauty of Hebron, The Thorburn, Lady Finger,

Lee's Favorite, Pearl of Savoy, Early Ohio, Alexander's Prolific, Clark's No. 1, Chicago Market, White Star, Mammoth Pearl, Vick's Extra Early, Dakota Red, St. Patrick, Vanguard, Hall's Early Peach-blow, Early Harvest, Charles Downing, Burbank's Seedling, Early Telephone, Snowflake, Early Minnesota, Hughson's Early Rose, Sunrise, O. K. Prolific, Colloge Seedling, Dakota Mammoth Pearl.

METHODS OF PREPARING SEED.—One eye cuttings, two eye cuttings, halves cut lengthwise, halves cut crosswise, quarters, seed-ends, whole potatoes, whole potatoes with two eyes.

ROOTS.

The following is a list of the roots included in this season's experiments. The sugar beets will be tested both in regard to their value for sugar making and stock feeding.

MANGOLDS.—Mammoth Long Red, Devonshire Mammoth Red, Heitche's Yellow Globe, Orange Globe, Vaughan's Improved, Dignity, Golden Tankard, Norbian Giant, Kivner Yellow Globe, Long Yellow, Red Globe.

SUGAR BEETS.—Laue's Imperial, Excelsior, Improved Imperial, Vilmorin's, White, Vilmorin's Improved White, Lane's Improved.

CARROTS.—Danvers, Intermediate Red, Improved Long Orange, Scarlet Altringham, Orange Belgian, Green Top Belgian, Danvers Half Long.

PARSNIPS.—Long Smooth, Improved Guernsey.

TURNIPS.—Large White Norfolk, Golden Ball, Yellow Stone, Cow Horn, White Flat Dutch, Yellow Aberdeen, Purple Top Globe.

UTA BAGAS.—Westbury Swede, Sweet German, Dakota Gem, Skirvings, Large White, Laing's Swede, Prize Winner.

Department of Entomology.

I. H. ●RCUTT, Entomologist.

Owing to the lateness of the time of appointment, and the delay necessary for procuring suitable appliances, it will be impossible to issue a bulletin based upon personal experience before the close of the present season.

The department is conducting an extended series of experiments to ascertain the best remedies to be used, also best methods and appliances for their application, in the destruction of the injurious insects peculiar to this climate.

Many insects, both injurious and beneficial, are being reared, and their life histories are being carefully studied. But the department cannot be raised to the desired degree of usefulness if its observations are confined to this locality; therefore we earnestly invite the co-operation of the people and press of the Territory.

Every farmer of Dakota is requested to put himself in correspondence with this department, and give a free expression of his views and needs. You may aid greatly by communicating all facts observed respecting damage done to crops and trees by insects, the results of

remedies tried, and all else that comes within the range of the subject.

The simplest fact, or what may seem to be a valueless observation, may be a key to a problem over which entomologists have long puzzled.

Let the Station hear from you if you are troubled by cut-worms, cabbage-worms, potato bugs, with "bugs" or "worms" of any sort, stating the damage done and the remedies used, with the results in each case. Many fail to realize the money value of such observations. It is supposed that the annual loss of crops in our territory is not less than a half of a million of dollars, possibly much more than that. It is possible to prevent a large part of this loss if only the farmers and the Station can work together against the common enemy. Concerted action is of the greatest importance.

The Station is ready to do its part faithfully and as promptly as possible.

Specimens should be sent by mail packed in cotton in tin boxes. Write plainly, give *all* the facts, and do not feel slighted if you do not receive an immediate reply. All correspondence will be acknowledged; but questions may come requiring weeks or even months of investigation to answer.