

Soils and Crops

Address communications to Agronomist, 73 Adelaide St. West, Toronto

THE CONTROL OF WHEAT STINKING SMUT.

Each year stinking smut or bunt of wheat causes enormous damage. Stinking smut causes loss in many ways. It lessens the crop and spoils its quality. When it is present the farmer gets for a bushel of wheat about half the market price. Few elevators or manufacturing places are equipped with devices to clean such smutty wheat, so that the crop is only salable for chicken feed. When smutted grain is mixed in with a carload of otherwise clean wheat, the bad spoils the grade of the good—and the whole carload suffers. The federal graders sharply discriminate against the smutty product.

The smutty grain of stinking smut with its vile, fishy odor is well known and dreaded on every farm. Stinking smut is a fungous disease. In the field, when the grain is in the milk stage, the smutted stalks can be detected by their peculiar gray-green color and by the slightly greater spread of the spikelets. But the sure test is to shell out the grain which, when stinking smut has taken possession, consists only of the swollen distorted hull. This puffy grain instead of being filled with starchy "milk" as in the normal kernel, is filled with a black smut powder. This black mass consists of the fungous spores.

The Cause of the Disease.

Since control of stinking smut depends upon our knowledge of the life history of the fungus it is necessary that the farmer understand this life story perfectly. The puffy grain of stinking smut dries as the grain matures and becomes a light smut ball filled with spores. The light walls of many of these balls are easily broken in threshing and the wheat becomes dusted with the smut powder. Some of the smut balls do not break until the grain is drilled and as will be seen this is the most dangerous time of all.

A smut ball under the microscope is seen to be made of smut spores. A single smut ball has been estimated to contain 500,000 spores, each one capable under the right conditions of reproducing the smut. A trace of smut one year, distributed in the dust at threshing time, liberally coats the wheat kernels. The spores lodge in the groove, and on the germ of the wheat, and thus fairly clean seed one year may become badly smutted the next.

When wheat is planted the smut gets in as the grain sprouts. This smut can only enter the tender sprout as it pushes out from the grain. The bulk of the infection occurs before the sprouts are three-quarters of an inch long. This period and this only is the danger time for the wheat. Every farmer has noticed that some years are worse smut years than others. A bad smut year for winter wheat is one when the fall is cold and wet and the grain sprouts slowly. This gives the smut splendid opportunity to get in. Time of planting is important. Very late planted wheat meets bad growing weather for wheat, which, however, is good growing weather for smut. Hence smut is usually worse

with late plantings. With spring wheat the later plantings usually meet faster growing periods hence the reverse condition holds. There is no mystery about the matter. Outside the grain there is a parasite growing when the grain sprouts and developing as the grain grows. If it can grow to or be washed to the tender sprout it enters and the stalk becomes diseased.

The subsequent story of the smut is interesting. Once inside the grain the smut grows as the grain grows, keeping pace with the progress of the developing shoot. The microscope reveals the threads of the fungus, in the affected stalks, but outwardly there is no visible sign. When the wheat stalks, the smut grows out into the air shoots so that usually all heads produced from one smutted grain are smutted. The exception comes when by some rare condition the wheat in its growth outstrips the parasite and accordingly we sometimes find wheat with a stalk or two clean and the rest smutted or we may find a head, half smutted and half sound.

The smut gives no evidence of its presence until the wheat heads and grain begins to form, and then the hidden enemy takes possession of the kernel and makes smut powder instead of grain. This powder distributed by the thresher is ready again to infect next year's crop and repeat the story over and over to the disadvantage of the farmer.

The Control of Stinking Smut.

Since stinking smut is carried to the field in the grain, and gets in only in the short period when grain sprouts are emerging, a method which will kill the smut on the grain without injury to germination of the grain will prevent smut. In the early days the farmers washed the grain and got fair control. Some used brine and reduced smut slightly. Then pickling grain in copper sulphate or blue-stone solution was introduced with good success in smut control, but with bad effects on germination.

Finally, formaldehyde was discovered to have value for treating grain and farmers were advised to soak wheat in weak formaldehyde solution made with one pint of formaldehyde in forty gallons of water, skimming off the smut balls which rise to the top. This gives perfect control, even when the smuttiest of wheat is treated. If the treated grain is dried and planted at once it gives along with this perfect control of smut little injury to germination.

This treatment has its drawbacks. The grain when soaked is hard to plant, and is troublesome to dry. If it molds, sprouts or freezes it is injured. It sows unevenly and often gives a poor stand. If held more than a short time, the formaldehyde spoils the germination.

Many farmers simply sprinkle the grain with the weak formaldehyde solution. This works almost as well as the soak and skim method provided the grain is fanned before treatment to remove smut balls.

lation of about 30,000, is making several hundred dollars every summer selling flowers. She plants the beautiful garden varieties, asters, pink phlox, gladioli, and the like—the kind which require little care in her climate. She picks these two or three times a week, arranges them in small bouquets, and takes them to one of the largest grocery stores in the city, where they sell for 10 or 15 cents a bunch. It is astonishing to see how rapidly they disappear.

Two other farm women I know make a specialty selling pansies and sweet peas in a similar manner, but on a smaller scale.

In a sparsely settled district an acquaintance of mine and her two children are spending their few spare hours during the summer gathering native ferns in the woods on their farm, and sending these by parcel post to large city greenhouses.

Ordinary horse-drawn offers possibilities to the ambitious woman. One homemaker grinds these roots, mixes them with vinegar, and bottles the product, which she sells to stores and individual customers.

Cottage cheese will sell in many vicinities. Both stores and individual customers are interested. One of the most attractive ways of selling this product, especially when directly to housekeepers, is to pack the cheese in small paraffin-coated paper jelly glasses, covering them tightly. This sanitary way of handling the product gives one farm woman the corner on the market in her community.

Canning Garden Truck.

In my own neighborhood this last summer a farm woman who has had egg customers in town for several years took orders from them for canned garden truck, particularly string beans and corn. She has "cashed in" on being able to pick and can the vegetables the same day, which is impossible in the city. The women furnished the cans and hired the farm woman to fill them, paying for the labor and food. The profit made by selling these vegetables canned is something to be proud of, and there was but one delivery.

Fruits may be canned and marketed in the same fashion, but again observation and experience show that more success is obtained when a woman has a specialty of some particular fruit product.

One farm woman has a large trade for her delicious apple butter. Another housekeeper, who lives on a farm where gooseberries grow abundantly, is doing a worth-while business in selling gooseberry marmalade. The sale of red cherries is another woman's method of boosting the income.

Marmalades, jellies, honey, maple syrup, and fruit butters offer attractive possibilities when a special market can be developed. A tearoom or a restaurant, or an exclusive club, frequently desires to buy such foods,

in many instances wishing to secure them in individual paraffin-coated paper containers. I know a woman who makes many dollars every year selling home-made sausage to an exclusive trade.

In some communities, located within tramping or motor-car distance of a city having more than 20,000 inhabitants, farm women are earning money by supplying meals, served by special order, to parties of motorists or hikers who like to get back to the country occasionally, drop into an "honest-to-goodness" farm home, and have a real meal.

Farm women can capitalize the atmosphere of the open fields and autumnal woods, which are different to city folks just as the theatres and decorated white way of the city are to you. City persons can telephone and ask for a dinner for six, suggesting that chicken or chops with the usual trimmings be served. One farm woman has been successful in this kind of a business venture.

Winter Profits.

Many women fill in their spare moments, particularly in the winter, with sewing and fancywork. Crocheting, tatting, and embroidering are general favorites, and in sewing the making of baby clothes and aprons are most popular, largely because there is no fitting to be done. Two women who made a good profit from this business have excellent marketing places. One has her sewing on sale in a little shop where machine hemstitching is done, and the other one has her fancy work on exhibit in a restaurant of a dry-goods store. If the clerks in the store sell the merchandise, they receive a small commission for their help.

Home-made doughnuts from the farm, direct to you, have an appeal, just as do fresh coffee cakes and cookies. One farm woman has a remarkable cookie trade, especially at Christmas time. These festive cookies are made by order, and a few are sold in stores.

They are cut in various shapes, from those representing Christmas trees, people, animals, and the like, to the plain round and star-like ones. They are iced sometimes, and are decorated with red sugar, currants, raisins, citron cut in shapes, and nut meats.

After a woman decides what she wishes to sell, she is ready to consider her market. This may be obtained by talking to friends who might be interested and asking them to speak to their neighbors about your project. If this brings no returns, advertising in the local paper, taking up the project with local merchants, or placing exhibits in stores are possible ways of arousing interest.

When the customers are obtained, the only way to hold them is to give satisfaction by selling high-quality goods. This holds old trade and brings new business.

POULTRY

No poultry-keeper, either upon a large or small scale, can expect a profit from his operations if his flock and his poultry house are infected with lice and mites. Both are easily brought upon perfectly clean premises, possibly by the introduction of fowls purchased elsewhere. Sparrows are frequent spreaders of these pests.

Lice may be readily controlled by providing a good dust bath and by the use of blue ointment or one of the many lice powders that are on the market. The control of mites, however, is not so simple. Unlike the hen louse these are not, as a rule, found upon the fowl; neither are they killed by dusting. They are found usually in cracks around the roosts and nests and will be readily detected upon examination of these parts. At night, when the fowls are on the roosts, these mites may be seen issuing from cracks and running along the roosts.

The only method of control is thorough cleaning and disinfecting of the premises. Remove all droppings, litter and nesting material, scrape and sweep out every particle of dirt, and give the house a thorough soaking with a good strong disinfectant, forcing it by means of a spray pump into all cracks.

Whether mites are known to be present or not, the roosting and nesting quarters should be treated weekly during the summer, since the mites breed very rapidly.

Ordinary coal oil will kill mites but as it evaporates quickly its effects are not lasting. A good disinfectant mixture may be made at small expense by adding crude carbolic to the kerosene, about a quart to a gallon of the latter, or by adding one of coal tar disinfectants.

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WHY NOT? I hope they're going to make her do the same! Sydney Bulletin (Australia)

Parents as Educators

Beans and Boxes—By Mary Collins Terry.

It is often hard for the mother to find lasting and pleasant pastimes for her little child. He may be too young to play outdoors alone. During the winter months many hours a day must be spent indoors.

My knowledge of a two-year-old child's play instincts and the use of some very ordinary household material, have developed several occupations which might be found useful and helpful to others.

There are his beloved "Beans." He has already spent days and days with them and still shows a ready interest when they appear from the shelf in the pantry. A little cup of beans, the hard red kidney beans, and a glass dish were the extent of his materials to begin with. He loved to pour these out and refill his cup, becoming absorbed in his occupation for as long as thirty minutes at one time. Later I added a glass fruit jar, and mixed with the red beans some large white navy beans for him to sort out and drop into his jar. This also was found to be a successful experiment, giving training to his powers to discriminate in color and size.

Our "Beans" lend themselves to many occasions. They were the means of keeping two little visitors happy while the mother, who had left them in my charge, went to town. She told me afterward that she has borrowed the idea for their playtime at home. My son's irrepressible desire to pound

the chairs and tables or hammer on the furniture with almost any article he could get hold of led to another occupation. The material this time consisted of a box which the grocery boy had left, a good sized nail, and the coveted household hammer. Although he does not do anything so far but fit the nail in an old nail hole and pound, he is safely giving vent to a growing instinct to handle and wield, in imitation of his elders. Later two or three nails could be given, and still later a bit of board to nail to the box, anticipating future crude but effective toy making and carpentry.

Speaking of boxes, I might mention our "toy house" which was made by nailing together two boxes of the same size, one above the other. This is kept in the kitchen because the children are often playing here during the time that meals are under way or kitchen work being done. This low and convenient place having been provided for them, toys formerly left discarded on the floor are kept picked up and stowed away in the toy house. One shelf holds a large basket of little things, "Jim-cracks" of all descriptions to easily lost and so dear to every child's heart. The rest of the space is given to a box of blocks, dolls and balls, while a few old magazines and picture books are kept on the top. The house is enjoyed by the children, and is a big help to Mother in keeping her rooms in general good order.

Every flower was ready. The pink roses by the gate were already nodding a welcome, blossomy bushes were ringing their golden bells, and the graceful lilies had practiced their manners perfectly. The little pansies nudged one another and tried to keep from laughing aloud.

Suddenly the gate was flung open and a voice cried, "Oh, the garden, the dear, dear garden."

There was a flutter of white skirts and apron strings, and down the garden walk a joyous little girl came running. The flowers knew by the look in her eyes that she was going to love them.

A group of bright nasturtiums peered anxiously from behind a snowball bush, and a row of frilly pinks ducked their heads and curtained politely. The hollyhocks, straight as soldiers, glanced over toward the corner to see if the pansies were in order.

"I should like to shake them!" the tallest hollyhock snapped. "Just look at the silly little things hanging their heads."

For the pansies, suddenly shy and timid, were hiding their faces in the grass. Already they loved the little girl, but in their hearts was the thought: "What if we should not please her?"

The child danced merrily up to the row of hollyhocks. "Hello, you nice old things!" she said.

The proud flowers stiffened. They wondered whether she were treating them with just the proper amount of respect.

She had a happy greeting for the graceful lilies, for the snowball bush, for the roses, the petunias and the pinks.

Then, all at once, she gave a little cry. Running to a corner of the garden, she clasped her hands and bent low.

"Oh, you darlings!" she said. "You blessed little things! I hoped you would be here, and here you are!"

An instant later she was running toward the house. "Mother," the flowers heard her call, "didn't I say I knew there would be pansies?"

That night when the pansies had gone to sleep, each with a happy smile on its small face, the other flowers, wakeful, talked the matter over in the moonlight.

"I wonder," said the proudest hollyhock of all, "why she loved the pansies so when they didn't even hold up their heads to greet her?"

A pink rose nodded thoughtfully. "I think," was her answer, "our little girl understood why the pansies hung their heads."—Youth's Companion.

The Dairy

A dairy expert says that rosy milk is caused by an organism usually occurring in stale water. These bacteria may gain access to the milk through rinsing utensils in water from a tank, or they may adhere to the bodies of the cows as they wade through stagnant pools and later drop into the milk pails.

Many people have misunderstood this trouble and have disposed of certain cows thinking they were the cause of it. But rinsing the utensils in clear, fresh water and steaming, scalding, or sunning them will prevent most of the trouble. Washing the cows' flanks and udders in a mild disinfectant before milking should eliminate the remainder of it.

Most of this trouble occurs at this time of the year and will cause a thickening of the milk in a few hours so that it may be drawn out in long threads. The milk may be entirely sweet, yet present this thick rosy appearance.

Stay in Bed.

A correspondent, who is just getting back to health after a long illness, tells me that he has lost weeks and weeks of time because he hurried back to work too soon after an attack of "flu." He thinks people should be warned against this folly.

The moral is that you cannot hurry nature in her work of tissue building. When you have suffered a destructive illness, in which there has been waste of tissue, the part of wisdom is to rest quietly in bed until repair has been accomplished. You may manage to fool yourself into the idea that you are ready for work, long before the time has really occurred, and you may work up the "pep" that will send you back to your work, but do not think that there will be nothing to pay. It is not certain that you will be thrown back to your bed in a hurry, as was this man. But a worse thing may befall you. You may manage to keep on with your daily tasks, though performing them at a big disadvantage, and meantime, while you are congratulating yourself on how well you are defying nature, there is some organ of your body that is carrying a double burden and beginning to give way under it.

Quite frequently this overtaxed organ is the heart. A few months or perhaps years later some doctor tells you that you have a "heart murmur." You don't see how this can be, because you have always had such a strong heart; and it never enters your head that perhaps you did not treat your heart exactly fair when you placed all that extra load upon it in getting back to work so much too early. But that was the time when your heart began to go, and the fact that you thought that you were pulling the thing off so successfully at that time is now little consolation.

Parents should be especially careful of young children who have had measles, scarlet fever, diphtheria, influenza or typhoid fever, to make very sure that they have made a complete recovery before resuming their usual occupations. Under no conditions should they be allowed to jump right into the old strain, but it should always be insisted that play and work be taken up gradually. In a general way, the same rule applies to adults. Take time to get well, and resume your occupations gradually.—Dr. C. H. Lerrigo.

Essentials of a Good Wheat Stand.

If we are plowing a stubble ground for wheat we like to do so at the earliest possible opportunity. Early plowing liberates plant food which is necessary for growing large crops of wheat, and the earlier it can be done the better the results.

The ground is then rolled and harrowed alternately until a fine, thoroughly fitted seed bed is prepared, so firm that the horses feet will not sink into the soil more than an inch or two while drilling. Where wheat follows beans we often start fitting the seed bed before the beans are removed from the field. Usually a couple harrowings with the spring tooth harrow is sufficient.

Wheat likes lots of readily available plant food. Barnyard manure is good but we like it best on the new seedling or for the cultivated crops, so what we can spare for the wheat goes on the higher spots and is valued chiefly for winter protection. We use 200 lbs. or more of a good complete commercial fertilizer. No doubt the greatest profit comes from the phosphorus, but we like a little nitrogen to give the crop a good kick off, and we are convinced that a little potash pays.

Nothing but the best of seed from a variety that has been tried and proved is good enough. It must be thoroughly cleaned and graded, treated to kill the smut germs, and sown at the rate of two bushels per acre.

Often a good growing of a crop is spoiled by a poor harvesting and marketing of it.

A good cement floor in a henhouse is economical, durable, ratproof, easy to clean, dry, and sanitary. It costs a little something, but is worth a lot more.

Don't stop feeding either chicks or laying hens this summer. It is the worst mistake a poultryman can make, say specialists on the subject, and it never pays.

Farm Wives I Know Who Are Earning Extra Money

By Nell B. Nichols

I have talked with a great many farm housekeepers in the last few months, and I find that, while they are eager to economize, they are equally eager to maintain a high standard of living, even though money is not so free as it was in the after-the-war period.

Many of these women have asked me, as a farm woman who meets farm women, to suggest how they may earn money. I believe farm women are joining their city sisters in the movement of doing something in connection with their housekeeping which will bring an income. I have met several farm women who are cashing in on their outside efforts. For example, one woman makes a few hundred dollars every year selling rhubarb; another one grows garden flowers, and markets them through a grocery store in the nearest city; one has a unique cottage-cheese trade, and still another rural woman takes orders for canned vegetables and fruits from city women who furnish the cans. In this way the garden and orchard products are sold with very little delivery expense.

And here is another thing I discovered. The woman who earns this money buys home improvements with it. They have labor-saving devices. I have talked with a great many women who want these devices, provided they will pay for themselves. Anything we can do to point out that labor-saving devices are not a luxury, but an economy, since they save time, doctor bills, etc., will do a mighty fine service.

Almost every woman has something on her farm, or has the ability to make something which will sell. Experience and observation have led me to believe that selling to city or town customers—the people who have the

highest value for the direct-from-the-farm appeal—brings the greatest success.

The first thing in starting the business, however, is to decide what you have to sell. Specialize on some particular thing. That's the game. Then comes the problem of finding the market and holding it.

I am going to tell you some of the ways the farm women I know are making a good income without neglecting their homes.

Of course, the old stand-bys, chickens, eggs, and butter, continue to do excellent work. With the nearness to markets, due to the parcel post and motor cars, there are many other avenues open to business, if the farm woman wishes to make the adventure.

Growing Rhubarb and Onions. In one district, for instance, a business-like housekeeper is capitalizing the rhubarb which grows in her garden. Her business is quite remarkable in that she furnishes most of the rhubarb consumed in the nearest town, with about 4,500 inhabitants, every spring. While she sells directly to a few customers, most of her marketing is to the local grocery stores, which makes the work of delivery smaller.

Another farm woman is selling onions in much the same way, only on a smaller scale. The winter onions, which come as the first greens after the last snows and before the other garden stuff is up, are mighty welcome in the town or city where hot-house vegetables are scarce and prices are high. So this farm woman pulls these early onions, ties them in bunches, and sells them in town to local merchants.

A farm woman, living within motor-car distance of a city having a population

of about 30,000, is making several hundred dollars every summer selling flowers. She plants the beautiful garden varieties, asters, pink phlox, gladioli, and the like—the kind which require little care in her climate. She picks these two or three times a week, arranges them in small bouquets, and takes them to one of the largest grocery stores in the city, where they sell for 10 or 15 cents a bunch. It is astonishing to see how rapidly they disappear.

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For the twelve months ending April, 1922, Canada exported fish to the value of \$29,003,181, of which codfish represented \$5,371,324 and canned salmon \$6,446,204.