

# Pests and Enemies of Ginseng and Remedies Therefor

## and Specialization in Growing of Crops in General.

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From Report of Fifth Annual Convention Michigan Ginseng Growers' Association.

**-F**OR forty years or more the professors of agriculture and horticulture in our agricultural college, and I think in all similar institutions in this country, have advocated what is called mixed husbandry, instead of advising farmers to devote all their capital and energy to growing one crop or one kind of produce to sell from the farm. Here are some of the reasons for this advice:

Manure is economized, as crops do not all feed alike; the fertility of the soil is better and more economically preserved; weeds are more easily controlled; it enables a person to distribute his labor more evenly throughout the year; it gives a proportion of grain for feed, and coarse straw for litter; crops in alternation are less liable to attacks of fungi and insects. When fields are occasionally cultivated, moles are less likely to become troublesome.

If all the eggs are put in one basket, and that basket takes a fall, where will the owner look for revenues?

One objection can be made to the production of many kinds of crops or animals by every man, viz: Very few persons have the ability to carry on well so many kinds of business. Perhaps a compromise between the extremes of one thing and a large number of things is about right. Let the producer engage in a few lines of only in which he can succeed best; thereby enabling him to become proficient in a few things, and not a failure in many things.

While at South Frankfort last summer, I observed VanDeman & Co. had dug a trench about their plat of ginseng, as I remember it to keep the roots of wild plants from making inroads on the sacred rights of the ginseng. In the botanic garden at the college that I manage, for a long time we were annoyed by the advent of quack grass and moles, which came in from the large campus surrounding. I tried lumber, which was costly and soon decayed. Next I dug a narrow trench to the depth of eighteen inches or more, one bank of which was gently sloping to one side, and on this smooth side plastered an inch to an inch and a half of cement, which soon hard-

ened so the trench could be filled. The two enemies, mentioned above, stopped then and there on their own side of the cement. Any one wishing to use trees to shade his yard of ginseng in place of lattice work, could stave off the effect of tree roots by digging a trench three feet deep, and see that the bottom contained only infertile soil, which might discourage the tree roots from digging under the cement for good feeding ground.

To scare thieves at Frankfort the firm named turned loose at night two lively and noisy dogs; besides, adjoining the garden was a small house in which one of the proprietors or a trusty man slept and watched all night.

The shading at this place, as many of you know, consisted of seven-eighths cedar strips four inches wide extending north and south, placed two inches apart, thus shading two-thirds of the surface. This seemed to work so well that the proprietors were going to experiment on exposing wider strips to the light. From what I know of plant growth, I think it would require more shade for ginseng, the farther south we go, especially in places some distance from a large lake.

Ginseng is a delicate, thin-leaved plant, not so easy to grow with success as potatoes, corn and beans. I have often wondered why so many grow ginseng with success, but I learned the explanation at your meeting last winter. Those successfully engaged in the work are unusually alert and painstaking. In sagacity they surpass most people who engage in growing fruits, vegetables, pigs, chickens or cattle—all combined on the same farm.

Plants may be said to be diseased when they do not thrive on account of having too much water or too little, too much light or too little, on account of a severe wind or unsuitable fertilizers, and for several other causes. No special remedies need be prescribed for such things. Cucumbers, tomatoes, beans, cabbages, are often damaged or destroyed by bacteria, and the plants die quickly. You may be familiar with the cucumber wilt. The remedy is to pull up vines as soon as they show wilt, and destroy them. Plant for a few years in places remote from where the wilt

has existed. No spraying is effectual. In case of the fruit and leaves of beans, no spraying is of any use; save seeds from healthy plants and plant in a new place. In cases of beans, the disease passes from farm to farm in diseased seed.

As all the older persons present know, when apples are first grown in a new country, they are fair and the trees clean and healthy, but by degrees the larger orchards and the smaller orchards alike harbor apple crab, black rot, codling moth, tree borers, and many other enemies. So in growing any crop of garden, field or orchard, or ginseng, we are led to expect a continued increase of fungus foes and other enemies, as greater number of persons engage in the business.

You need no introduction to fungus enemies—minute plants which are parasitic, tramp-like, sponging their living on your favorite pet, ginseng.

Now, a word about remedies may interest you. Of hundreds of inquiries that reach me every year regarding weeds and plant diseases, two questions never fail to come with the specimen: viz., "What is it and how can I easiest get rid of it?"

Bordeaux is the most famous, and so far, usually the cheapest and most efficient fungicide yet discovered, and is extensively used in many countries from Maine to California, Europe, New Zealand, and Australia. Although a favorite remedy, it is not an unmixed good, even when well prepared and well applied. Careful observations by many experts have detected more or less injury to plants which have been sprayed—plants in great variety from the hardy apple tree growing in sunshine to the delicate, shade-loving ginseng. Injured leaves show irregular dead spots, more or less scattered about after spraying with bordeaux. This injury, especially of apples, is known as "Spray injury," or "Bordeaux Scald," "Bordeaux Burning," "Spray Russetting," "Cork Russetting," "Yellow Leaf."

A recent bulletin, No. 287, prepared by Professor U. P. Hedrick, of the Experimental Station at Geneva, N. Y., speaking of apples, says: "Use less copper sulphate; give the 3-3-50 formula for bordeaux mixture a thorough trial; spray in moderation; spray to cover the foliage and fruit with a thin film and yet not have the trees drip heavily; use the remedy only in dry weather or when plants are dry if possible; use equal amounts of lime and copper sulphate." The formula means

three pounds of copper sulphate, three pounds of lime to fifty gallons of water, which is weaker than formerly recommended. Bordeaux mixture is made in this way: Suspend the copper sulphate in a cloth sack in a cask of water until it dissolves. Slack stone lime in water, straining it through a brass wire sieve, about forty wires to the inch. The solution of copper sulphate and milk of lime are mixed and well stirred. All the water used for dissolving copper sulphate and slacking lime is counted in the mixture which ultimately is to consist of 3 pounds copper sulphate, 3 pounds fresh stone lime, 50 gallons water, or in these proportions.

Bordeaux is acid, the lime used neutralizes the acid, till the combination is alkaline. Whatever nozzle and pump are used, the pressure must be high enough to make a continuous fine mist and be moved along fast enough to avoid the falling of drops of the liquid.

The Vermoral nozzles have been considered the standard for excellence. Experts at the college this summer think a new nozzle called MISTY or the MISTY, JR., are better than the Vermoral. Here are circulars of the Gould Company, corner Ohio and Franklin Sts., Chicago, Ill., treating of spraying apparatus, and here are copies of Special Bulletin 37 by L. R. Taft of the Agricultural College, and here are samples of the best kinds of nozzles for spraying, and here on the wall is the chart shown last year illustrating diseases of ginseng.

Dr. Beal: Nematoids have been very injurious among certain gardens in New Jersey. As a remedy they have used about 175 bushels of slack lime to the acre.

Mr. Voorhies: Would ashes have the same effect?

Dr. Beal: I can't tell you.

Dr. Latimer: How do they apply the lime?

Dr. Beal: Put on the ground and plow under. Use slack lime.

Mr. Goodspeed: I think you will find that nematoids will increase quite rapidly, and an increase of two or three years will stop growth entirely. We get that disease in the old sections of the country more than in Michigan. I know of no remedy only to dry the root and start in a new place. It is a disease that is very readily recognized. Our experience is that sawdust does not retard the disease at all.

Mr. Pierce: Would it be safe to set gin-

seng roots in the ground after that preparation of lime has been put on?

Dr. Beal: No, they recommend to go to another place.

Dr. McMaster: I will say we found some nematoids in our old garden while digging this year. They were in beds from made ground that had been filled in three or four feet with old plaster, and wherever that old plaster was, the nematoids were thick, and that plaster had plenty of lime in it.

Mr. Twiner: We have used lime every year, and we have never made new beds unless we gave them first a coat of lime and spaded it in.

Dr. McMaster: I would like to inquire of Mr. Goodspeed if it effects the price.

Mr. Goodspeed: It is very rare you get it upon the body of the root. It comes on the fibers and does no damage whatever to the root. You could not tell, after the root was dried, whether it was effected by that or not.

Mr. Luther: I would like to ask what remedy to use for rust.

Dr. Beal: Do you refer to alternaria on the roots? I cannot tell you. I don't know much about it. I think Mr. Roof will explain alternaria more fully than I can, if he will do it.

Mr. Roof: To distinguish alternaria: The first thing you would discover would be a brownish spot on the leaf. It might possibly start on the edge of the leaf and creep toward the center, but we find ordinarily it begins in a spot and that spot soon becomes transparent, from the sucking out of the juices of the leaf by the fungi. You hold it up to the light and you see simply a hole, examine it carefully and you find there is a little film.

Dr. Beal: If you perceive this in the early stages, you can begin your spraying.

Mr. Roof: Yes. There is a difference in the starting of alternaria upon the stalks and upon the seed heads. If alternaria attacks your seed head or stalk either, they both turn a sort of a rust color. If it attacks your seed head, you see rust spots upon the seed or head. You may look for blighted seed. In the case of the stalk, if that should be affected with alternaria, it turns a sort of a rust color and following that you either find a rotten spot or a dried up portion of stalk. It very often opens up a hole in the stalk and then crawls up or down from where it is attacked, although I have seen stalks that were so dried that there was simply a film on one side where the outer skin of the stalk remained green and sufficient sap had been carried up through

that to maintain green leaves, but, of course, could not produce any growth in that condition.

Dr. Beal: Any one that is looking after disease must train his eyes to see these points.

Mr. Goodspeed: I would like to ask Dr. Beal if he knows anything of the diseases we call rust affecting the skin of the plant.

Dr. Beal: I do not.

Mr. Goodspeed: It is something like potato scab.

Dr. Beal: On your young plants?

Mr. Goodspeed: Not especially young plants.

Dr. Beal: Have you had Prof. Whetzel look that up?

Mr. Goodspeed: We have both been looking it up. The only remedy we can hit upon is to take the plants and move to a new section. Sometimes they will recover by taking up and setting in new soil.

Mr. Roof: I just had a little experience. I will say that it has been my opinion from observation that it is some bug. Where I have found that rust, I find that it is not communicated to other roots in my case and, further, I have taken up roots that were rusted and transferred to another bed and the rust has left them.

Dr. Beal: Mr. Goodspeed, has that been extensive enough to cause any trouble?

Mr. Goodspeed: It seems to be located in different sections. It is not wide spread, but I know of two or three gardens which it has got into bad. That disease practically spoils the root for market. There is a little in Michigan and some in New York, but I notice it comes more largely from sandy soil. Nearly every specimen I have comes from sandy soil. I had one hundred pounds shipped to me from Minnesota and not a root but was affected.

Mr. Ferris: On the matter of nematoid on the roots, I would like to ask those who have had it, would it not be better to throw away the roots or destroy them?

Dr. Beal: I would, most certainly.

Mr. Goodspeed: In that connection I would say that if you have a considerable amount of them, isolate them until they get their growth and dry and market them, but keep these roots entirely away from your garden. If you can afford it the better way is to destroy them at once, because that pest is certainly gaining.

We have handled this fall something like 175 different crops of green root, coming to us from Wisconsin and Missouri, and I would

be safe to say that the disease is present in fully 50 per cent. of the crops. Some crops will have it on every root.

Mr. Cook: Will the disease in time advance to the place where it destroys the root? You said the presence of the disease did not injure the root for market. If that is the case, why pay any attention to it?

Mr. Goodspeed: I said a moment ago that it would increase until it stopped the growth. It destroys the life of the fiber roots and their ability to feed the plant. The fiber roots begin to die first and all means of sustenance is taken away from the plant, while you have the body of the plant there that can be turned into dried root and something realized out of it.

### Chinese Worship of Ancestors.

Ancestor worship in China is a common feature of Chinese life. Crowds of men with newly shaven heads and queues beautifully plaited buzz about in the great "hall of ancestors" like bees. At a given signal the hum of conversation is silenced. Ten venerable looking men, wearing official hats and long white robes gather in front of the long table, on which the spirit tablets are placed. These are the chiefs of the various branches of the clan. Two of them take their places at the end of the table, the rest remain standing in front. A man steps forward from among them. He pours some samshu into three diminutive cups, and kneeling down, he waves one of these and says: "Your son of the tenth generation kneels before you with a spirit offering. Come and drink." Dishes on the table have been filled with a number of delicacies, which are offered, until the spirits are supposed to be satisfied. Then a scholar takes a long roll containing the names of all the families of the clan: this he reads. The document is then burned, and is supposed to go straight to the "dark world," where the fathers live. To conclude the ceremony, every one kneels down and knocks his head several times on the ground in the direction of the tablets.—New York Tribune.

Canajoharie, N. Y., R. F. D. No. 2, Feb. 16th, 1909.

C. M. Goodspeed, Skaneateles, N. Y.

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Respectfully,

STANLEY H. LASHER.

# SPECIAL CROPS

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### Golden Seal.

Owing to a fire we are unable longer to furnish the Hoag pamphlet on Golden Seal. In a recent mail he advises me that he has had a fire and the whole outfit was destroyed and no further copies will be printed.

### WANTED

We have several orders for this little work and are unable to fill them for the reason above stated. Anyone having a copy that they do not want, we shall be very glad to buy it of them. We need about six to fill orders already taken and will allow 20 cents for them up to the number we require, provided they are in fair condition.

C. M. GOODSPEED. Skaneateles, N. Y.

Iowa City, Iowa, March 13, 1909.

C. M. Goodspeed, Skaneateles, N. Y.

Dear Sir.—Your check of March 6 received and am well pleased with the returns. You paid me a little more than I expected to get. I also feel I got that much pleasure out of gathering ginseng and I expect to send you some more roots next winter. Thanking you kindly for check, I am

Yours very truly, JOHN J. LECHKY.