

United States Department of Agriculture Special Page

Bulletins and Special Articles Issued by the Government, of Interest to the Northwest;
Suggestions Covering a Wide Range of Activities; Results of Federal Investigations, Etc.

House Centipede Found Useful but Unwelcome

THE house centipede, although disagreeable in appearance, feeds on small cockroaches, the typhoid fly, and other still more disagreeable insects and therefore would not seem altogether an undesirable visitor in one's house. However, as one of the Department of Agriculture's entomologists says in a recent Farmers' Bulletin (No. 627), dealing with this insect, "its uncanny appearance is hardly calculated to inspire confidence, and it will unquestionably bite in self-defense, although very few cases of its having bitten any human being are on record." It does not feed on household goods and woollens, although many housewives hold this belief.

The house centipede is a Southern species, its natural home being in the latitude of Texas, but it has slowly spread northward, and having reached New York and Massachusetts about 30 years ago, it is now very common in these states and extends westward well beyond the Mississippi. It is a very delicate creature and almost impossible to catch, having a worm-like body about an inch long of a grayish yellow color. The name "centipede" is misleading, as it does not possess a hundred legs, but no more than 30, although the speed at which it travels across the floor does not give the ordinary observer sufficient time to count them. Its head is armed with a pair of very long, slender "feelers."

The bulletin advises the housekeeper who feels that the centipede has become a pest in her house to use fresh pyrethrum powder near bathrooms, closets, cellars, conservatories, and storerooms where it may hide itself. The suggestion is also given that all moist places should be kept free from any objects, such as flower pots, mops or dirty rags behind which the insect may conceal itself.

It is very questionable whether the centipede would ever, unprovoked, attack any human being or other large animal, still if it is pressed with the bare hand or foot or is caught between sheets in beds it will probably bite, and a few cases on record show that severe swelling and pain may result, for the insect belongs to a poisonous group of centipedes. The wound can hardly be called dangerous, however, and prompt dressing with ammonia is recommended to alleviate the disagreeable symptoms.

The centipede is in one respect like a spider in that it springs after its prey and is very rapacious. Trained observers have noticed that in capturing such a pest as a cockroach, the centipede springs over its prey, inclosing and caging it with its many legs after which it devours its victim. In the act of devouring a moth it has been observed to keep its numerous long legs vibrating with incredible swiftness, giving the appearance of a hazy spot surrounding the fluttering moth.

Effective Insecticide Is Made From Quassia

ATENTION is called in a recent bulletin (No. 165) of the United States Department of Agriculture to the possibilities of quassia as a contact insecticide. There is reason to believe, says this bulletin, that quassia can be cheaply prepared and possibly sold at a lower price than some of the materials now used in commercial insecticides. The only experiments, however, that have been made up to the present were conducted at Sacramento, Cal., and it is possible that in a more humid climate quassia would not be so satisfactory.

Quassia is the active principle in quassia wood, which is found in considerable quantities in Jamaica. Quassia chips have been employed for many years in the preparation of spray solutions for the control of the hop aphid. The percentage of quassia in these chips varies somewhat, but it has been stated to be 75 per cent by one author. If this is correct, the bulletin says, it would take only 1½ pounds of the chips to 100 gallons of spray to make an effective insecticide; 3 pounds, or double this quantity, would certainly be sufficient; and with 3 pounds of whale-oil soap at 4 cents a pound would make the total cost of materials for 100 gallons of spray only 24 cents.

Kelp As a Commercial Product

THAT the giant seaweed of the Pacific Coast, known as "kelp," can be profitably made into commercial fertilizer in the same plant where fish scrap is manufactured is a suggestion in a new bulletin of the United States Department of Agriculture entitled "Utilization of the Fish Waste of the Pacific Coast." The rendering of fish waste requires more specialized apparatus than the drying of kelp, but the amount of fish waste that could be utilized would keep the plant busy for so short a season that one factory could well be expected to attend to both.

With a plant fully equipped for the large-scale rendering of fish waste, all the equipment necessary for treating kelp, with the exception of a kelp harvester, has been supplied. Scows and tugs designed for the collection of cannery waste can be applied to the harvesting of kelp. The unloading elevators, storage bins, and conveyors within the plant are entirely adaptable to chopped kelp. Since the kelp is not to be cooked or pressed, the conveyors should be arranged with a view to the transference of the material directly from storage bin to drier. And the drier, of whatever form, probably would be found quite suitable for drying kelp.

Doubling Plant's Activity.

Assuming the canning season, for example, in the Puget Sound region to be confined to the months of July and August, the equipment of the rendering station can be applied to the treatment of kelp during the months of September, October and probably November, thus more than doubling the activity of the plant.

The capacity of the drier for the plant should be in actual practice, about 50 tons per day, which is equivalent to about 500 tons of wet kelp. Furthermore, even during the canning season, when the amount of fish waste available is not sufficient to keep the plant running at full capacity, kelp may be harvested and dried as a supplementary operation.

The following estimates may serve to convey some idea of the cost and profits to be expected from the supplementary operations on kelp. Since the drier has a capacity of 50 tons of dry kelp, the capacity of the plant is limited to the equivalent weight of green kelp, which, on the basis of 10 per cent solids in the green, is 500 tons. This, it is assumed, could be harvested and unloaded at 50 cents per ton. Such an amount of material probably would require at least two cutters and five barges of 100 tons capacity each; and to tow these to the factory dock, two tugs would be necessary.

Labor Cost.

During the season when cannery waste is being collected, the labor required would be on wages, whether actually employed or not. Under such circumstances the labor cost need not be considered, but only the actual expense of operating the tugs and cutters. After the close of the cannery season, however, the cost of labor would have to be borne by the kelp. Any estimate of this cost would be difficult and perhaps misleading, but it scarcely would be under \$50 per day. About one-half of this estimated cost of labor would be included in the cost of harvesting, and the balance in the cost of drying and sacking. The drying, it is estimated, would cost \$1 per dry ton. To sack the product \$2 per dry ton is a fair estimate, as a sack would hold over 100 pounds; the bags would cost something less than 10 cents each, including string.

The principal expenses of operation may be itemized as follows:

Harvesting 500 tons at 50 cents.....	\$250.00
Drying 50 tons (dry) at \$1.....	50.00
Bagging, 50 tons, at \$2.....	100.00
Overhead charges, selling and depreciation, 50 tons at \$1.....	50.00
Total.....	\$450.00
Freight to Eastern centers at \$6.....	200.00
	\$750.00

Profits.

The proceeds from the sale of the product may be estimated as follows:

On basis of retail sales, 50 tons, at \$22.94.....	\$1,147.00
On basis of wholesale sales, 50 tons at \$16.15.....	\$225.00

An estimate of daily profits may be made as follows:

Retail Basis.	
Daily proceeds.....	\$ 1,147.00
Daily expenditures.....	750.00
Daily profits.....	\$ 397.00
Profits for 30 days' operation.....	\$11,910.00

Wholesale Basis.	
Daily proceeds.....	\$225.00
Daily expenditures.....	750.00
Daily profits.....	72.50
Profit for 30 days' operation.....	2,175.00

While very great accuracy cannot be claimed for these estimates, as they are based on experience with materials other than kelp, it is believed that they are approximately correct and can be taken as an indication of what the items of expenditures and proceeds may be. They indicate strongly that a plant erected and equipped for rendering cannery waste can be applied with profit to the treatment of kelp. The proviso that the plant be equipped with a drier of large capacity must be introduced. In the beginning of the proposed industry the market on the Pacific Coast would consume the entire product, so that the high freight rates to the Atlantic seaboard could be avoided. This would add materially to the profits.

The Use of Bacilli as "Starters" for Cheese

THE use of cultures of bacillus bulgaricus in the manufacture of Swiss cheese is suggested in a new bulletin of the United States Department of Agriculture, No. 148. "The Use of Bacillus Bulgaricus in Starters for Making Swiss or Emmental Cheese," as a means of overcoming many of the difficulties experienced by American makers. The art of Swiss-cheese making is highly developed but few of the underlying scientific principles have yet been discovered and the difficulties in this way have led many manufacturers to believe that a really high-grade cheese of this type can be produced in only a few localities. As a matter of fact, the average quality of the American product has not been so high as that of the European. With the aid of the bacillus bulgaricus, however, there is reason to believe that some of the unfavorable conditions may be remedied.

Hitherto the main troubles have been caused by the presence of microorganisms which generate abnormal gas and produce what is known as "nissler" or "pressler" cheese, in which the normal formation of the eyes is prevented. Recent experiments have shown that these microorganisms can be to a great extent suppressed by the use of starters, a practice which is now common in butter making.

For this purpose the bacillus bulgaricus group of bacteria appears to have the most desirable qualifications. Moreover, these bacteria are easily obtained and cheesemakers who are willing to report on the success of their work can obtain a limited supply from the Department of Agriculture.

Experiments conducted by the investigators in a commercial factory showed that by the use of these cultures or starters the faults commonly found in milk delivered to Swiss-cheese factories early in the Spring may be overcome and good cheese made at that season. Moreover it is possible to make cheese successfully once a day instead of twice, the prevailing practice.

Making cheese twice a day calls for long hours for the factory hands and has other disadvantages. It was also found that cheese could be made in Winter as well as in Summer. About 3 per cent of starter gave the best results, the amount varying, however, with the condition of the culture. Detailed information in regard to these and similar points is published in the bulletin.

The palatability of silage is a large factor in its favor, along with the fact that it keeps the digestive system in good order in the Winter. It does not render the actual yield of the field double, but in assimilation of the feed units it adds a large per cent to the efficiency of the feed material. This, combined with the conveniences, brings the per cent of the advantages of a silo well up.

Third Known Outbreak of Quail Disease On

THE third known outbreak of quail disease has been discovered by the Bureau of Animal Industry in quail sent for examination from the National Zoological Park. These birds were received a few days ago from two of the principal importers in widely separated parts of the country. Most of the quail now on the market are imported from Mexico and are entered at the port of Brownsville, Tex. Under these circumstances all outstanding permits have been cancelled and further importations suspended for this season.

Quail disease, a highly infectious malady, to which all our native quail are apparently subject, was discovered in 1907 and was traced to a number of states. A second outbreak occurred in 1912, but was checked through the suspension of importation of birds from Mexico from which most of the supply of birds was drawn. Last year practically no birds were imported from Mexico and no quail disease was reported.

This year a limited number of birds have been permitted to enter at Brownsville subject to quarantine maintained through the co-operation of the Biological Survey and the Bureau of Animal Industry. All birds which were suspected of having the disease were examined at Brownsville or forwarded to this Department, but not until January 5 were the first undoubted cases of disease detected.

Game commissioners and sportsmen who are interested in the introduction of quail or who may have purchased birds for restocking this season are requested to advise the Department if any of the birds are known to have died from disease of any kind. As a measure of precaution any birds now in captivity should be kept under close observation for a period of at least 10 days and in case any of them die the bodies should be forwarded to the Bureau of Animal Industry of the Department of Agriculture for examination.

Bottling Pasteurized Milk While Still Hot

INVESTIGATORS in the United States Department of Agriculture have found that the process of bottling pasteurized milk while still hot has several advantages which make it seem probable that this method would prove both economical and efficacious when practiced on a commercial scale. In an article printed by permission of the Secretary of Agriculture in the Journal of Infectious Diseases, the authors declare that this method results in bacterial reductions as great as, or even greater than, by pasteurization in bottles.

The principal advantage of the latter method for the ordinary systems in commercial use is the impossibility of milk becoming contaminated again while being bottled. There is also some saving of milk, because there is no loss from evaporation. On the other hand, when milk is pasteurized in bottles, it is customary to cool the bottles by placing them in cold water.

This necessitates the use of absolutely water-tight caps, otherwise some of the cold water is likely to find its way into the milk bottles, and even a very slight leak may result in contamination. Waterproof caps are not only expensive, but care is essential to see that they actually are waterproof, and moreover, bottles with chipped or otherwise damaged tops cannot be used, no matter how nearly perfect the cap may be.

Laboratory experiments conducted by the investigators indicate that milk may be pasteurized, bottled hot, capped with ordinary cardboard caps, and cooled by a blast of cold air economically and with very satisfactory bacterial reductions. The air-cooling process requires a somewhat longer time than cooling by water, but in the laboratory it was found that thoroughly pasteurized milk, bottled immediately, could be cooled slowly without increasing the bacterial content. Whether or not the experience of the laboratory will be found true in commercial practice, remains to be seen. The Department of Agriculture, it is announced, will conduct experiments with a view to determining this important point.

Before the milk is poured into them, the bottles should be steamed for two minutes, the authors are careful to point out. This removes all danger of infecting the milk from the bottles, and is another advantage that this new method possesses.