

In the Field of Agriculture

WHERE AGRICULTURE MAY BE STUDIED

Nineteen states now require that an examination in agriculture be passed before a teacher may obtain his certificate, according to a bulletin just issued by the department of agriculture at Washington. This is an indication of the impetus that has recently been given to agricultural education all over the country. In the two years ending March, 1912, the number of institutions giving courses in agriculture increased at a rate of more than seventy-six a month, and the total number grew from 863 to 2,575.

Now that nineteen states require, by law, the teaching of agriculture in the common schools, the demand for teachers of the subject is constantly growing. Normal schools, therefore, are introducing courses of agriculture, and many agricultural colleges are offering special lines of work to meet this demand. Still, there are hardly enough teachers for the secondary school and the special schools of agriculture. It has been the object of the office of experiment stations of the department of agriculture, by investigation, just how many teachers already employed may acquire the training required to enable them to teach the elementary phases of agriculture.

Without doubt the most popular, as well as the most efficient means of giving this training, is the summer course offered by a college or normal school. The instruction is usually of a high class, and adequate apparatus and equipment for laboratory and field work are usually available.

There are also special short courses in agriculture offered in some institutions during the regular school session, usually the spring term.

The study of agriculture by correspondence has grown rapidly in favor during the last few years. The expense incident to a correspondence course is usually small; but this method has its disadvantages, as there is considerable danger of the students getting incorrect ideas on the more complex questions which arise. There are at present, however, about twenty-five state institutions and five private schools in this country in which some regularly established correspondence work may be done along this line. Many of the courses in the state institutions are free to residents of the state, except for the cost of textbooks and postage.

Reading courses are also offered by several state agricultural colleges which do not conduct regular correspondence work. These courses are intended for farmers and farmers' wives rather than for teachers.

The new bulletin also announces that the department of agriculture has prepared several reading courses of its own free publications for those who might desire an agricultural reading course, but who do not have the time to seek out their own material or might wish to avoid the expense of purchasing the books. The lists of reading for this work have been compiled in view of the great increase in demand for agricultural training in the past three years. They will enable all those who have the inclination or any spare time to follow out a thorough course, the publications being supplied free by

the government. There are eight courses offered, which thoroughly cover all important agricultural subjects.

IDEAL RATION FOR A DAIRY COW

It is not possible to give a ration that will suit all conditions and all kinds of cows, says A. B. Mystem, Pullman station, Washington. In general, however, it may be said that the first requisite of an ideal ration for a good dairy cow is to feed all the roughage (soiling crop, hay, silage, roots, etc.) she will eat up clean and one pound of concentrates (bran, chop, all kinds of grain, soy bean meal, etc.) for each three or four pounds of milk she produces. In most cases it will be found that this will be just about all she will eat regularly without going off feed. The second requisite in an ideal ration is that it should be nutritious. The ration should be sufficiently bulky on the one hand to fully distend the stomach and other digestive organs, and at the same time there should be enough digestible material to fully meet the requirements of the animal. Practical experience has shown that a proper balance is reached when about two-thirds of the total dry matter of the ration is in the form of roughage and one-third in the form of concentrates. In addition to this an ideal ration should be palatable, so that an animal will eat it with a relish. While little is known concerning the effect of palatability, it is certainly true that of two feeds alike in all other respects, the one most readily eaten by the animal will be the more effective.

The secretion of milk seems to be intimately connected with the water content of the food. The cow needs a large amount of water to drink, but aside from this there is a demand for feeds containing a high percentage of water, such as green forage, silage, roots, etc. The cow's digestion is kept in much better tone when such feeds are used.

To have an exact balance between the protein and the carbohydrates and fats is not so important as was once thought; for milk production it is necessary to have a larger amount of protein than for beef animals, but a dairy ration is now considered fairly satisfactory if the nutritive ratio fall anywhere between 1:4.4 and 1:6.5. Last of all, the ideal should be composed of such feeds as will furnish the largest amount of digestible nutrients at the lowest cost. This necessitates the liberal use of home grown feeds with proper selection of those which must be purchased.

THE VALUE OF STRAW CROPS

The straw crops, practically wasted a few years back, are now looked upon as very valuable material in modern farm practice. In times past thousands of tons of it were burned to get rid of it. Later it was used as a coarse food for stock and as a shelter and protection for stock during the winter season, or used as a covering for stock shelters and barns. In general the more important uses of the straw crops were little understood, and their true value not appreciated as at present. Some of the bright wheat straw, and all of that from oats, is now considered a very valuable food for the stock, when it is passed through the straw cutter

and made into "chops" by mixing with it, when dampened, some fine corn meal, wheat bran and middlings. Prepared in this way it can be used quite largely in the place of hay, and makes both a good and economical food. The more inferior straw is of much value in bedding, and it should be used liberally to increase the quantity of manure.

After all that is used for stock food and bedding there is generally a good surplus of straw left on the larger farms, which can be very profitably used for mulching material for vegetable and fruit crops. In the vegetable garden, after the Irish and sweet potatoes are laid by, haul and spread thickly between the rows enough straw to completely prevent the growth of weeds and wild grass. It will keep the ground clean and prevent the surface from becoming too dry while the crops mature. The mulch rots and finally benefits the soil. It can be spread liberally all over the ground and close around the tomato plants after cultivation ceases. The tomatoes will spread out, bloom and fruit, and no weeds can grow. This method conserves the moisture in the soil and prevents the loss from rotting where tomatoes are allowed to come in contact with the ground. Use the straw mulch thickly all over the ground and close around the hills of cucumbers, musk and water-melons, and pole beans, and employ it on any other garden crops where a mulch can be used. When all crops are harvested remove the tops and vines and plow the straw mulch under as a benefit to the ground.

Straw is very useful in the lot where small fruits are grown. For the strawberries the straw is placed over them only once and that in the late autumn. In the early spring, remove fully three-fourths of the straw from over the rows of plants, but leave in the spaces between. This mulch keeps down the weeds, conserves the moisture and keeps the fruit clean. Currants, gooseberries, raspberries and blackberries, are much benefited by covering the entire ground with a heavy coating of straw each spring as soon as the pruning is done and the ground is well cultivated, and before the bushes and vines bloom, spread the straw. No weeds and wild grass can spring up and all further cultivating for the season is at an end, and besides the straw mulch is of much advantage to the fruit if the weather becomes very dry during the ripening season. Of course, while mulching is recommended on limited areas it will perhaps not prove to be practical when fruits and vegetables are grown on a large scale.

A WOMAN'S PROFIT WITH GEESSE

In a Maine town is a woman, Miss Eva Storer, who is making good money raising geese. Miss Storer believes that there is no land or water



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