

be well to find out which pays least and drop it. To find out a good way to winter, it would be well to visit some bee-keeper who has for some years made a success of wintering, and follow his plan as nearly as you can. One cannot over-estimate the value of these visits, there are few men who will not tell you what they can if approached in a proper way; take paper and pencil and put down what you want to know, for very often you will go home and make some bad blunder through getting "mixed." Whilst upon the subject it will not be out of place to urge every one to attend all the conventions they can, do not be afraid of an outlay of a few dollars; it will pay you well. The International Bee Association, which meets this year in Brantford, Canada, this December 4th to 6th, and which already promises to be one of the best attended conventions ever held in America, offers an excellent opportunity for every one keeping bees, or intending to keep bees. Information will then doubtless be given by the best authorities upon the subject. The programme is an excellent one; reduced hotel and railway rates have been secured, and if any one wishes for information and particulars upon the subject I shall be pleased to furnish them.

#### FOOD FOR BEES.

That granulated sugar is a safe winter food for bees no one will deny; that first-class capped clover or linden honey is a safe food for bees but few deny. That fall honey, such as golden rod, bonaset and aster, is a safe food for winter for bees very many dispute. The majority are not always right, yet in this instance investigation will probably show the majority to be correct. No one can afford to feed granulated sugar; it is retailing at 10c. per lb., and the retailer has but a very slight margin on it. Seeding, except whole combs, should be avoided, very little can be said in its favor, and so much against it.

#### HONEY EXHIBITS.

A visit to the Toronto Industrial Exhibition and the honey building gave us a view of the best honey display, for the present year, made in Canada.

The reason for this is probably that the inducements offered were greater. Every effort was made by the officers to assist exhibitors.

Mr. R. McKnight, Owen Sound, had the nicest display. Mr. McKnight's tastes and means enable him to make a good display.

R. H. Smith, Bracebridge, Ont., had probably the second best display of extracted honey.

Jacob Alpaugh, and E. A. Thomas had a beautiful display of comb honey.

Rev. D. P. Niven, Geo. Laing, J. Davidson's exhibits added much also to the excellence of the exhibit.

Fruit done up with honey, also cake, were shown, and intended to educate the public as to the merits of honey in cooking.

It is rather remarkable that there was no display of bee-keepers' supplies. The wisdom of this may be questionable, and yet at that season of the year bee-keepers purchase but little, and their interest is very slight in aparian supplies. Could they show their goods in the spring of the year in such a place doubtless very many would take advantage of the opportunity. Supply dealers I think should show a few leading lines. A large exhibit is quite an unnecessary expense. The absence of any display in 'ais l.' may lead others to show next year.

At Toronto the honey was very good color, probably never better, the reason of this is because the bulk of it was from linden; the color of this is very clear.

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The flow has been a very fair one, and owing to the scarcity of fruit, honey is, and will be, in good demand. The bee-keeper should take advantage of this and enlarge his market.

## Horticultural.

Figw are the persons who have ever made the acquaintance of our exquisite and fragrant white water lily (*Nymphaea*) in its native home but have yearned to transplant it to their gardens. If a shallow place can be found where they are growing along the stream, and one of the large, thick roots secured, this may be accomplished. For to hold them, nothing answers better than half of an old oil barrel. Sink this in the soil, the damper the situation is the better, and fill the tubs about half full with strong loam mixed with thoroughly rotted cow manure. In this place the roots, and cover with an inch or so of clean sand. The rest of the tub is now filled with rain water, which it has been found may be kept sweet until the lilies are well advanced by planting with them a few of the quicker growing water-plants, such as duck-weed. Where a number of these half-barrels are grouped together, it has been suggested that the unoccupied space between them be planted with such plants as ferns, calla lilies, caladiums, and other varieties that love moisture.

### Mulching Strawberries.

By W. W. HILLBORN, Horticulturist Central Experimental Farm

The crop of strawberries will very much depend on how well the plants have been protected during the winter and early spring. It is not the severe freezing that injures the plants so much as the oft-repeated freezing and thawing. The use of a mulch of coarse manure, marsh hay, or clean wheat straw, is most effectual in preventing injury from this cause. Oat straw generally packs too closely, and does not admit air freely enough to either soil or plants, especially on heavy land. As soon as the ground freezes in the autumn sufficiently hard to prevent horses and wagon from breaking through the crust, the mulch should be applied. Most of the material should be placed between the rows with just enough immediately over the plants to nearly cover them from sight. Before growth begins in the spring, draw the covering off from the plants and let it remain between the rows until after the fruit has been gathered; it thus serves the triple purpose of keeping the fruit clean, the soil cool, and causes it also to retain longer the moisture gathered early in the season—which is all important to the production of a large crop of fruit.

In localities where late frosts are likely to occur at the time of blossoming, the mulch should be removed just before growth begins in spring and very shallow cultivation given. The soil becomes warmer when thus loosened and the blossoms often escape a frost, when the land is thus treated, which would otherwise injure them to a considerable extent.—*Ottawa Central Farm Bulletin, No. 5.*

### Chess (*Bromus Secalinus*).

By J. HOVES PANTON, Professor of Natural History and Geology at Ontario Agricultural College.

The following are some reasons why a person should be ready to conclude that this plant is no exception to others and depends for its perpetuation upon the seeds which it matures:

1. The plant is widely different from wheat in appearance; so much so that botanists place it in the genus *Bromus*, while wheat belongs to the genus *Triticum*. Couch grass (*Triticum repens*) being in the same genus as wheat, comes much nearer in its characters than chess does, and yet no one ever hints that it is derived from wheat. If chess is a degenerated condition of wheat we might reasonably expect some resemblance to the plant from which it was derived.

2. The most devoted evolutionist would not expect to see develop in the short space of a few months, owing to the effect of frost, a plant so unlike in structure, form and habit to that from which it is derived. It is only through long periods of time that such modifications in a plant can take place as to change its character so much that it may be viewed as a new species. But in this case one season brings about such a remarkable change that the plant is ranked in another genus—a more comprehensive term than *species*.

3. If chess be sown it yields chess. If it were degenerated wheat, and sown under favorable surroundings, it should soon return to wheat; for we observe both in animal and plant life that a deteriorated form will return to its proper nature when conditions are suitable for growth. Some have gone so far as to say chess will not grow from seed, but this is a mistake that can easily be seen by sowing some of the seed.

4. Chess will mature seed under adverse conditions, though the plant be only two or three inches high; while if surroundings are favorable it grows three or four feet high before seed is matured. This may account for its never being seen in good crops, while it may be seeding the ground for a more suitable time, when the crop in which it is seeded is injured by frost; then this hardy annual (the seeds of which possess great vitality) is ready to take the vacant soil and yield a crop no longer hid from the farmer's eye.

5. The conclusions arrived at by all men who make plant life a special study are, (a) that chess is a typical plant, producing seed yearly, which give rise to plants of the same character; (b) that a seed of wheat cannot be sown so as to produce chess; and (c) that chess cannot produce wheat under the most favorable conditions for growth.

6. In instances where parts of a plant, apparently a combination of chess and wheat, were so mixed as to seem but one plant, close examination proved them to be parts of separate plants, and that the apparent union was not real. In some cases microscopic examination has been required to prove it.

7. Wheat has been grown in some places and often winter-killed, and no chess has appeared. There are places where chess is unknown, and wheat in these passes through all the vicissitudes which seem favorable to the development of this weed in other parts where the plant is common. Farmers careful in using clean seed often have winter-killed wheat unaccompanied by chess.

8. Liberal rewards have been offered by agricultural papers to any one who could prove conclusively that chess is derived from wheat, and as yet no successful competitor has appeared, though as high as \$500 was the prize.

With these facts before us, it does seem difficult for a person to accept a theory which demands greater concessions than the most sweeping form of evolution. Though this plant may appear under circumstances difficult to explain, we are forced to believe that if its origin is carefully considered it will not require one to

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