

Dividing Line Swept Away

Thus at one stroke the barrier between organic and inorganic compounds was swept away. Since that time many plant and animal constituents have been made in the laboratory without the agency of any living matter, and there are few chemists who do not believe all plant and animal constituents can be artificially made.

From Woehler's time until recent years urea continued to be a compound of interest chiefly in the laboratory, where, because it was the form in which nitrogen is chiefly excreted from the human body, its properties were studied and methods for determining it devised. It was not difficult to make, but the demand was in ounces and it cost a dollar per pound or more.

During the development of fertilizer practice in the last half century suggestions were made from time to time that if the fertilizer elements could be supplied in more concentrated form there would be a material saving in the cost of transportation and handling, but it is only within the last decade that advance has been made in the use of concentrated fertilizer materials.

Plants Utilize Urea

Urea, a water-soluble compound containing 46 per cent nitrogen, naturally suggested itself as a concentrated form of nitrogen provided it proved to be readily utilized by plants and could be made cheaply enough. It has been demonstrated by several years' experimental field work that urea is changed in the soil so that it can be utilized by plants and that it ranks high among the sources of nitrogen for fertilizer purposes. The cost of manufacture, while it still makes urea cost somewhat more than other nitrogen carriers, is not now so excessive as formerly and increased demand and improvements in manufacture will undoubtedly help to lower this cost.

The interest in urea from a chemist's point of view is twofold: (1) Its preparation in the laboratory marks a milestone in the history of chemistry, and (2) it stands out as a simple chemical compound containing carbon, oxygen, hydrogen, and nitrogen that is made commercially from its elements. All the chemist needs is a lump of coal, some air and water. With the proper equipment and process, urea results.

EDMUND C. SHOREY.

VELVET Beans of a Bush Variety Developed With Distinguishable Seed The original bush or bunch variety of velvet beans was first developed as a sport from the Alabama variety in 1914. The plant differed from all other cultivated varieties in being nontwining—that is, bush or bunch in habit. Unfortunately, the nearly spherical and grayish seeds marbled with brown were identical with the seed of the most widely grown twining varieties—the Georgia, the Alabama and the Florida.

In its place of origin it became abundantly established and soon replaced the other varieties. Its advantages were that it did not twine on the corn and therefore did not pull down the stalks, as was common with the twining sorts. It was found especially valuable as a green-manure crop in orange and other groves, where any variety

that climbs the trees is decidedly objectionable, particularly while the trees are young. As a hay crop it has a particular advantage because the absence of twining stems does away with the common difficulty in mowing ordinary velvet beans, which make a tangled mass of vines. The principal objections to the bush variety are that the pods can not be gathered as rapidly as those of the twining varieties, and they lie so close to the ground that they become water-soaked in wet weather, causing many of them to decay.

With such advantages over the twining sorts, the demand greatly exceeded the supply of seed. With resulting high prices, unscrupulous growers and dealers took advantage of the similarity of seed of the twining and bush varieties and substituted cheaper seed of the former wholly or in part for the latter. This practice soon caused reliable

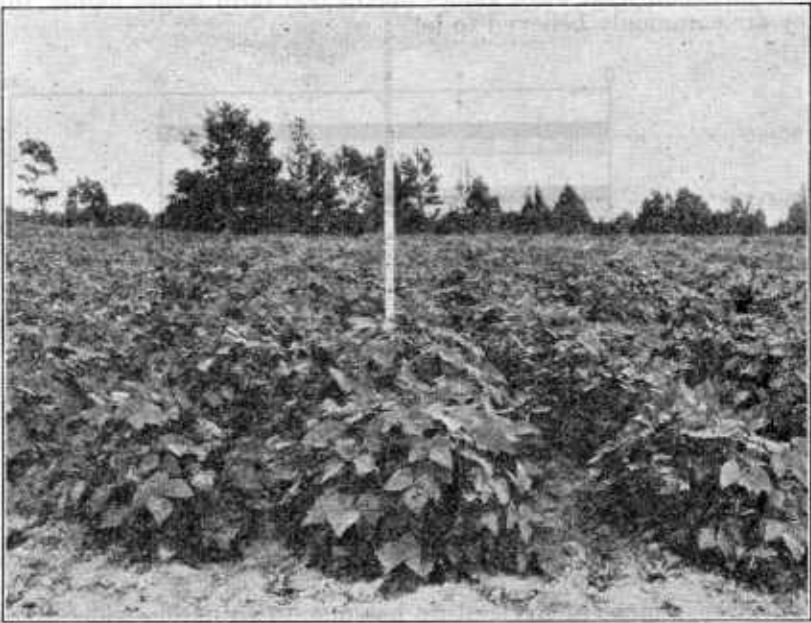


FIGURE 231.—A field of a new bush variety of velvet beans with gray seed developed by the United States Department of Agriculture

seedsmen to refuse to handle the bush variety, with the result that at the present time it has practically disappeared from the market.

Realizing the value of a bush variety of velvet beans, the United States Department of Agriculture attempted through selection and hybridization to develop bush varieties with seed easily distinguishable from that of twining sorts. Several very promising bush and semi-bush types have resulted from hybridizing black and gray colored varieties with the bush variety. Seeds of these types vary in color from gray to gray speckled with black, and there is also considerable variation in shape and size of the seed. All are quite distinct in color, shape, and size from the seed of the vining varieties. One of the most promising new types (fig. 231) is a sport with ash-colored seeds, selected from the original bush variety and, except for color of seed, identical with that variety. The department has no seed for distribution at the present time.

With seed easily distinguishable from the twining varieties, thereby eliminating the element of fraud, it is hoped that the new types of the bush variety will achieve the wide popularity which the bush variety previously held, and that they may become highly useful and particularly valuable for the special purposes indicated.

W. J. MORSE.

WAGES of Farm Hands Augmented by Many Important Perquisites. Wages of hired farm laborers properly include not only the cash payments commonly quoted but also the value of payments in kind and the value of privileges. These latter, except board, are commonly ignored in discussing wages, although they are of considerable aggregate value. Their inclusion with wage values makes real farm wages higher than they are commonly believed to be.

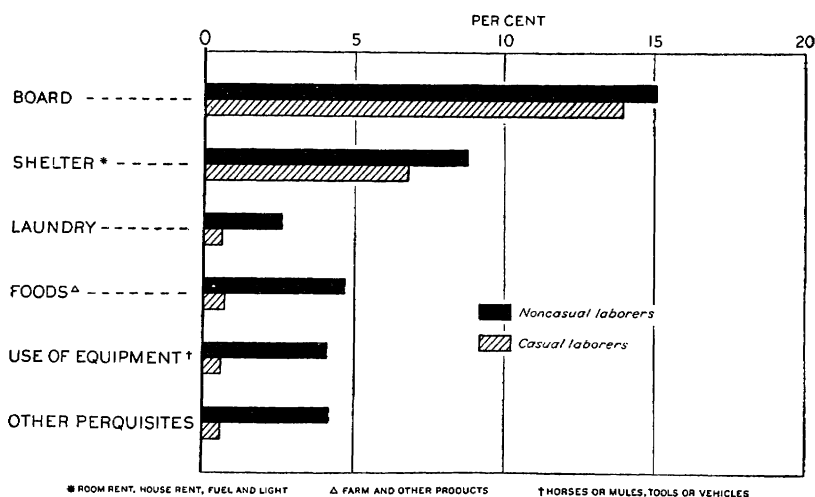


FIGURE 232.—Comparative percentages of total remuneration values received in perquisites by casual and noncasual farm hands

The Department of Agriculture has made two nation-wide studies of the perquisites of hired farm laborers, one of casuals, another of noncasuals. Noncasual laborers are permanent employees compared with casuals, being hired for the crop season or longer. Casuals are employed usually for short-time rush work, especially at harvest.

In the two studies the real wages of noncasual farm hands are made up of 60 per cent cash and 40 per cent perquisites. Similarly, casual laborers get 77 per cent of their remuneration in cash and 23 per cent in perquisites. The cash wages for their rush-time work average decidedly higher per day, and their perquisite values average slightly lower than for noncasuals. This sharply reduces the proportions of their total remuneration received as perquisites.

Board is the principal perquisite, both in frequency of occurrence and in value. Shelter, including room or house rent, fuel, and light, stands next. Other perquisites are of less frequency and smaller aggregate value.

Ninety-eight per cent of noncasual laborers were reported receiving perquisites, compared with 85 per cent of casual laborers. The latter