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Food Value of Eggs.

Practically all food-stuffs are now unusually high in price; especially is this so with meats. Round steak, which commonly sells for 12 cents per pound, now costs 20 cents, and the common pork chop sells for 18-20 cents, while rib roasts and sirloin and porter-house steaks cost from 25 to 30 cents per pound.

A study of 376 American dietaries shows that meats and fish formed 38 per cent by weight of the total food material; eggs 2.1 per cent; dairy products 18.4 per cent; and all animal foods combined formed 38.5 per cent of all foods consumed. Thus for one-third of the food eaten came from animal sources; the remainder from the plant kingdom.

Meats furnish nutrients at a higher cost than that of the same nutrients when obtained from vegetables; but, owing to their pleasing flavor, meats will probably remain an important part of the American dietary, at least until their cost becomes prohibitive except to the wealthy. Meats are no more indispensable in the diet than is coffee.

Eggs can probably be substituted for meat with less objection, on the part of the consumer, than in case of other foods, such as beans, macaroni, peas, etc. At present market prices—round steak at 20 cents, and eggs at 16 cents—a given sum of money will buy more food nutrients in the form of eggs than in round steak.

Eggs do not differ greatly in composition from meat. The average egg, purchased, consists of about 11 per cent waste material or shell. The edible portion consists of about 74 per cent water, 13 per cent protein or muscle-building material, 10.5 per cent fat, and 1 per cent mineral matter.

For comparison, medium fat round steak, as purchased, consists of about 74 per cent waste material, bone, fat, etc. The edible portion consists of 66 per cent water, 20 per cent protein, 10 per cent fat, and 1 per cent mineral matter. Round steak contains slightly less refuse and water than eggs, but rather more protein and fat. Round steak contains approximately one-third more food nutrients than an equal weight of eggs.

Eggs vary greatly in size and weight, but the average egg weighs about 2 ounces, or eight eggs weigh a pound.

Twenty cents will buy one pound of round steak; and, with eggs at 16 cents will buy 1 1/4 dozen, or 15 eggs, weighing 30 ounces.

Since round steak contain about one-third more food material than an equal weight of eggs, 24 ounces of eggs, or one dozen, will correspond in food value with one pound of round steak. Twenty cents will purchase a dozen eggs, or 30 ounces; hence at that sum will buy one-fourth more food nutrients in the form of eggs than in round steak.

Eggs are more economical than meat in another way. While a pound of meat is sufficient for three or possibly four people, for a meal, the same number of people would not eat more than eight eggs, possibly not more than four, costing less than half what a pound of meat costs. While the eggs would furnish less food material, that is no objection, because it is a well-known fact that the average person is overfed rather than underfed.

Eggs are very thoroughly digested; in fact, practically all the nutrients they contain are utilized by the body. The same thing can be said of meat. Raw or soft-boiled eggs are more easily digested than such as are hard-boiled; but, with a healthy person, eggs are thoroughly digested, regardless of method of cooking.

The substitution of eggs for meat is an effective way to reduce the cost of living.—Ralph Hoagland, Minn. Col. Agriculture.

A Good Time for Killing Weeds.

The hot, dry days of the summer are the best for killing weeds, especially those which have persistent underground root-stalks and are perennial in nature. As soon as the early crops of hay, barley and rye are removed, operations should be started which will lead to the eradication of such weeds as wild oats, mustard, quack-grass and thistles. After cutting the weeds in crops, it is a good plan to disk the land so as to cover the seeds that are shattered out. This is especially true for treatment for land infested with wild oats. The disking is for the purpose of hastening germination, so that in three weeks after disking, the weeds may be plowed at the ordinary depth and harrowed and disked frequently. Hay land can be plowed in after the crop is removed, and if weeds such as thistles or quack-grass are present their growth will be seriously interrupted. Following the plowing of stubble or hay land, it becomes essential to double-disk the land once or twice per week, depending on the growth made by weeds, so as to prevent them from establishing new root systems. The disking should be kept up until about the 1st of September. It is difficult to give time for such operations during the busy haying and harvesting season, but anyone who has a patch of thistles or quack-grass that he wishes to eradicate can make much more progress during the hot weather of July and August than at any other season of the year. The effort should be made to find time if possible. The frequent disking and cultivation, to September 1st, will keep the quack-grass or thistles in subjection. By September 10th to 15th, the field may be sown to rye. The rye grows quickly and strong, and will take possession of the land, crowding back and choking the weeds during the fall season. The rye starts early in the spring also, before most weeds, and keeps them in check during the early part of the next year. Such treatment, persistently followed, will lead to comparatively clean fields in a very short time. Those who are following regular crop rotation, and who are providing such crops as barley, rye and clover, that will permit plowing and cultivation during the hot season, are experiencing very little difficulty in completely cleaning their fields of the noxious weeds.—Andrew Boss, Minn. Experiment Station.

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Late Corn Cultivation.

The farmer who has been accustomed to "laying his corn by" on such a date finds himself in a peculiar circumstance this season. From present indications late cultivation must be the keynote of this season's corn crop. The growth the plants have made, and the moisture condition of the soil will surely necessitate later attention than in previous seasons.

Corn is a cultivated crop, and a profitable crop is not obtained unless the cultivator is used until the corn is too large to be cultivated with a two-horse implement. Should dry weather continue, large corn may be benefited by the use of a one-horse cultivator or a light A harrow, used between the rows. At all events every late cultivation should be a surface cultivation, and not too close to the corn-plants. We cannot afford to disturb or break the roots of the corn-plant at this season of the year, and the entire aim of late cultivation should be to conserve soil-moisture and check the late weed growth.

Late rains may come, but for the present let us remember that moisture already in the soil is just as good, or even better, than that which may come. And again it may not come, in which case a few extra surface cultivations may mean the making of the corn crop this year.—O. M. Olson, Extension Div. Minn. Col. of Agriculture.

Diseases in Plants.

Many farmers, as well as amateur raisers of plants, hardly realize the fact that plants are subject to specific diseases, just as are man and other animals. Moreover, a large number of farmers think that diseases which may devastate their crops are new things or of recent origin. Although it is a fact that some of these diseases are recently imported, and although it is also a fact that these diseases are worse in some years than in other years, and apparently move over the country in waves, yet it is also a fact that many of these diseases have existed in the country as long as the crops.

There are two things of utmost importance in regard to a plant disease; first, the cause of a disease, and second, the conditions under which the disease develops. The cause of most of these diseases is usually a parasite of the nature of a fungus or a bacterium. Every disease depends more or less upon the weather and other conditions surrounding the plant, for its development. Some years we have had attacks of scab on apples, or of rust in the grain, while other years we do not. In both cases we always have the disease with us, but the weather conditions may or may not be favorable for the development of the disease.

It is to be expected, and it has been the experience in almost every long-settled district, that the longer crops are grown—and the more intensive, and specialized and restricted the agriculture of a region—the more will disease accumulate. If potatoes are grown on the same farm for a long series of years, diseases are bound to increase in number.

In handling diseases, the farmer has two methods of protection. First, artificial preventive measures, and second, favorable weather conditions. His potatoes may not need spraying in some years, because of weather conditions which may be unfavorable to the spread of the disease. On the other hand artificial methods, such as spraying, selection of variety, etc., furnish in many cases an insurance which the modern farmer will find absolutely necessary for the success of his work.—E. M. Freeman, Chief of the Div. of Veg. Path. and Botany, Minn. Univ. Farm.

His Own Uplifter.

In the general movement now in progress for the uplifting of Agriculture, the farmer is simply coming to his own. He it is who, from the beginning, has been paying the major portion of the world's educational bills. His enduring industry and patience have been the piers on which have rested the fabric of the educational system. But a perverted conception of the meaning and purposes of education, and an unjust appraisal of some branches of learning as of more value and as deserving higher honor than others—in the minds of those who have, through, a reverence for tradition, been allowed to control the instrumentalities of instruction—have until recently given a monopoly of educational opportunity, beyond such as were afforded by the "little red" schoolhouse, to men whose faces were turned away from the farm. When strong men began to challenge that conception; when they began to demand by what right the science of the forum was placed above the science of the field; by what right the youth destined for the pursuits of the city were given opportunities greater than those afforded the youth of the country—then the uplift began. We see its fruit today in multiplying Schools of Agriculture; in the varied applications of science to the processes of the farm; in a demand for trained farm managers at high salaries; in the more than doubling of the wages of the farm laborer; in the vast improvement of farm homes; in the fact that the farmer, more numerously than any other man, is the owner of the automobile; and in the further fact that he is today reaching forward to such a control of banking facilities in the United States as shall enable him to use, in the enterprises of the farm, the capital he needs for their highest development; and this without being obliged to pay exorbitant interest or to give mortgage security for every loan.

But let it be remembered that the farmer was the first to attack the false conception of education here alluded to; that his have been the forces which have brought about the advances named; that he has been in the past, and is today, his own "uplifter." While gratefully acknowledging the beneficence of the co-operative spirit recently shown by bankers and business men, he would respectfully remind them that they are quite as much the beneficiaries of his endeavors as he is of theirs.—C. R. Barns.

Two Serious Fruit Diseases.

About this time of the year two very destructive diseases of fruit begin to appear. The brown rot of plum, and scab of apple, are the most serious diseases of their respective hosts with which the fruit grower has to contend.

Every orchardist is probably familiar with the general appearance of brown rot and scab on the fruit. However, it may not be generally known that both also attack the foliage, thus causing very considerable damage in lowering the vitality of the tree. The scab fungus, especially, is extremely prevalent on apple leaves this year. In many cases the trees appear to have been scorched, so numerous are the smoke-colored scab-patches on the leaves. The spots on the leaves are sometimes referred to as sooty blotch. However, they are caused by the same fungus which causes the familiar scab of the fruit, and they are responsible for carrying the disease through the winter.

The brown rot of plum attacks plums, cherries and apples. Mummified plums or cherries of the previous year are the source of infection in the spring. Flowers are attacked as soon as the buds open; they become brown and die. Leaves may also become infected, and the disease may even go back into the young twigs, killing them and causing gummy exudations. This year it is not at all uncommon to see plum and cherry trees on which there are numerous young twigs with dried leaves which have been killed by the brown rot fungus. The loss, in many cases, will be at least fifty per cent.

Destruction of diseased plant parts, in so far as is possible, will aid greatly in controlling both the scab and brown rot. In the spring a dormant wash should be given; and this, followed by proper spraying methods, will reduce the loss to a minimum. All orchards in which either of these diseases appear should be thoroughly sprayed next year.—E. C. Stakman, Assistant in Plant Pathology, Minn. University Farm.

Curing the Hay Crop.

The haying season is at hand, and methods for curing hay are again under consideration. It is impossible to prescribe a method that can be successfully followed by every one who has hay to make. The best results will be obtained, so far as quality and feeding value are concerned, by cutting the hay early. Clover cut in full bloom, and timothy cut just as coming into bloom, will make the best quality of hay, and be comparatively free from dust. A slight loss in weight will be made in this way, but the improvement in feeding value will quite make up for this small loss. The weather is always a prime factor in hay-making. The advantage of bright, sunny days for wilting the hay should be secured if possible. It is a mistake, however, to leave the hay, either timothy or clover, exposed to the rays of the sun very long. As soon as withered, it should be turned over and put up in medium-sized cocks to cure. When well cocked and settled, it may stand for several days, even through moderate rains, without serious damage. Before putting in the barn, the hay cocks should be opened up to the sun a couple of hours in advance, and the hay hauled to the barn or stack.

A combination of the tedder, side-delivery rake and loader will wilt the hay and dry it sufficiently, usually, so that it need not be cocked. On small hay fields, however, where extensive equipment is not available, hand methods must be resorted to. The tedder is a useful and valuable implement, even on small fields, and should be used whenever possible.

In curing clover and alfalfa hay, the canvass cock-covers can be used to advantage; and, if well cared for, they will last many seasons. The improvement in quality of the hay, secured by their use in a single season, may quite cover the first cost. The time required to put them on and take them off is not a serious matter when the covers are weighted at the corners with cement slugs, thus obviating the necessity of staking down or fastening the covers.—Andrew Boss, Minn. Experiment Station.

Co-operative Canning.

The cannery is an almost indispensable adjunct to the profitable growing of small fruits and the more perishable products of the vegetable-garden and the orchard. Especially is this so when markets are distant and variable. When it may not pay to ship, it will practically always pay to "can." For the appetizing pulp and juices of fruits, and garden vegetables, with their delicate flavors, have an intrinsic value which cannot be destroyed by any temporary decline in the market. Can or preserve them, and the winter's demand is likely to outrun the supply.

Had the equipment been at hand for converting them into apple butter, the many thousands of bushels of Minnesota apples which went to waste last year—not "for want of a market," but because the grower had not learned how to market them—might have been made the source of considerable profit. For apple butter always commands a fancy price in the cities, and often cannot be had at all. If co-operatively made and marketed, and sold at a price which—while giving the orchardist as large a profit as he would have realized on the raw fruit—would make it available for everybody's table, its manufacture would dispose of all apples not sold in their natural state, including many not fit to market otherwise. So of plums, berries, tomatoes, asparagus, rhubarb, peas, beans and a long list of "cannable," "dryable" or "preservable" products.

Few enterprises lend themselves so easily to co-operation as does the canning and preserving industry. An outfit with a capacity of 1,000 No. 3 cans per day, including a large copper boiler for making apple butter, ketchup, etc., with furnace for outdoor use, can be bought for \$25. An evaporator for drying 15 to 18 bushels of apples per day costs about \$50. The processes are easily learned, and a single skilled operator can handle a large business. If the goods are nicely put up, with a neat label, showing their origin, they will with most buyers be given a preference over the factory products of the cities.—C. R. Barns.

Uses of Sour Milk.

At a time when so much is seen in print about the medicinal value of sour milk, it behooves the Minnesota housewife to become an experimenter to the extent of its frequent use on her table, during the summer months at least. Experimental work is usually expensive, but in this case it is not so. Sour milk is easily obtained on the farms of this, "the Bread and Butter State" and might well take the place of tea and coffee during at least a portion of the time. It furnishes some nutrients, without the stimulating effect of tea and coffee. Tea and

coffee, when taken hot, add to bodily discomfort on a summer day, and if chilled they require as much time and expense as does the chilling of sour milk for the same purpose. Commercial preparations, such as "lacto" and "idalac" owe their medicinal value to the lactic acid content and to the bacteria which produce this acid. Iowa Experiment Station Bulletin No. 118 says: "Science has shown that the presence of putrefactive bacteria in the intestines may be very detrimental to health. Lactic acid bacteria, which are entirely harmless, will largely replace these putrefactive forms. Lopped milk and buttermilk will supply lactic acid bacteria."

The use of milk on the farm table would necessitate keeping some milk at home each day, and churning occasionally, instead of sending all to the creamery and buying butter. Such a course entails extra work, but, if it promotes good health, it is certainly the right course to pursue.

There are many ways in which sour milk can be successfully used in cooking, when combined with other ingredients, as in the making of hot breads, etc. It is equally useful and nutritious as a meat substitute, in the form of cottage cheese. It can be used as a beverage, made into a palatable soup, or formed into a pleasing dessert. Buttermilk and lopped milk serve about the same purpose in the diet, and are suitable for about the same kind of dishes.—Junia L. Shepperd, Minn. Col. of Agriculture.

Living Up to One's Bread-Pan.

The Pioneer Press some time ago told of a young woman who, having long been without a satisfactory bread-pan, was finally presented with one so fine and capacious that she laughingly questioned whether she would be able to "live up to it." What achievements in the way of bread-making might not now be expected to her, since she was the owner of such a pan! Her humor reflected a conscientiousness, and a sense of responsibility for the right use of opportunity, such as, if it were more general, would tend powerfully to the social uplift.

A writer in the "Farmer and Breeder" tells of another young woman who, when a bride, found among her presents one of the very best modern bread-mixers. But she had always made bread in her dishpan, and went right on doing so, although the bread-mixer would have done the work better, and with less labor, and in one-fourth the time. Here, not conscientiousness, but a stolid conservatism, prevented the young woman not only from living up to her opportunities, but from letting the light of what might have been a helpful example shine for the benefit of neighbors; who, like herself, were needlessly carrying the burden of an antiquated and laborious process.

When anyone is tempted to complain of the inadequacy of surrounding opportunities, may it not be well to inquire whether he or she is really "living up" to such as are already in one's possession?—C. R. Barns.

Sheep.

The care of a flock of sheep is a job a good deal less sweaty and laborious than the swinging of scythe and hoe in an unending effort to kill off the weeds. In the presence of such a flock, the weeds rapidly disappear, and the grasses take possession of the ground. Some farmers are said to hesitate about starting a flock of sheep, because of the prospective reduction of the duty on wool, and the decline in price that would perhaps follow. But this should cut no figure in the case. Mutton always commands a profitable price; and the combined returns from mutton and wool, added to the services of the sheep in keeping down weeds and enriching the land, will always make the flock a highly valuable contributor to the prosperity of the farm.—C. R. Barns.

Cutworms.

While we have had the usual number of cutworms this season, there has been no such scourge of the pest as visited us last year, in spite of the fact that some enthusiastic reporter represented the Entomologist as predicting a second visitation. In this connection it may be wise to advise our readers not to accept without question articles which appear in the State press, purporting to come from the Entomologist's office, unless such statements be authoritatively signed. Reporters sometimes make mistakes, as in the above instance, and these mistakes, copied all over the country, not only unintentionally misrepresent facts, but cause unnecessary alarm and anxiety among farmers and gardeners.—F. L. Washburn, Entomological Div. Minn. Exp. Station.