

phere about us. By growing legumes, there is no question but what we can save ourselves the expensive bills incurred by the purchase of high-grade, nitrogenous fertilizers. But the source of potash and phosphoric acid in this plant, as well as lime and other necessary elements for the plant's growth, has been the soil."

"Following are the important points I wish to emphasize:

"1.—Alfalfa produces large amounts of protein and saves expense bills for concentrated feeding materials.

"2.—It is richest in useful nutrients for the earliest stage of growth, when it is just coming into bloom.

"3.—Its proportion of leaves to stems is also greater at that time, and consequently, enhances its feeding value.

"4.—Rain dissolves out the useful nutrients.

"5.—It adds fertility to the soil, fifteen to twenty dollars' worth per year per acre in nitrogen, and brings potash and phosphoric acid nearer the surface.

"6.—It removes phosphoric acid, potash, and other essential plant elements from the soil, and for maintaining permanent fertility in the soil these must either be returned in the well-preserved manure, or supplied by the purchase of commercial fertilizers."

The Functions of Speculation

Speculation is the fly-wheel which imparts to the modern commercial machine a motion so uniform that all of its parts operate continuously and simultaneously. As men produce and consume, as well as exchange, according to comparative prices, it also directs the consumption of commodities into the most advantageous channels. Professional speculators are the men best equipped for securing and interpreting news of variations in supply and demand, and they determine a price that, with slight local variations, prevails throughout the wheat industry of the entire world. Price, in turn, is a sensitive barometer which records the influence of every event which, immediately or mediately affects supply or demand. Speculation anticipates price—determining events to such an extent that it relieves the producer from the risk of growing wheat that he may be obliged to sell below the cost of production on account of an unforeseen change in the market. The directive control exerted through prices "is its service to society in general." The "risk-bearing function is its service to trade as such." That the need of speculation is proportionate to the magnitude of the risk element is axiomatic. Through the speculative market flows a continuously moving stream of business which will carry the risks of merchants, producer, manufacturer and consumer alike, and at any time and place. Speculation alone makes hedging transactions possible. By its anticipations, it lessens price fluctuations. The short seller is the most potent influence in preventing wide fluctuations in price, for he "keeps prices down by short sales and then keeps them strong by his covering purchases." The producer always finds a ready market, and large stocks of wheat can be carried over from a season of abundance to one of scarcity without great risk of loss.

The American is unquestionable the greatest and most typical of all wheat speculators. The stupendous undertakings which he sometimes assumes are characterized with an importance, as well as with a boldness and brilliancy, that excites world-wide interest. He is practically the manager and director of the world's wheat movement. If objection is made to the great scope of his influence, it must be remembered that experience has taught him that he cannot continue long in his position of importance unless he solves the mighty world problem that is ever presenting itself—the problem of providing bread for the non-producers of wheat. Eminently practical and clearheaded, his future vision is as keen and penetrating as was that of the prophets of old. He is necessarily a cosmopolite, and he knows the traits and needs of many races. His facilities for acquiring information are unsurpassed. He knows the progress of harvesting in Australia and Argentina. The transportation companies give him regular quotations of freight rates to all parts of the world. Telegrams and cablegrams give him immediately the change of price in the principal markets. He has an intimate knowledge of the visible supply of wheat that is stored in the world's great terminal elevators, and of the wheat that is being transported in car and vessel. His eye is always on the fine wavering ratio line between supply and demand, and from its movements he determines the form of his price line. The markets make wheat so liquid for him that the banks will advance him money at the lowest rates on elevator certificates in larger proportion to their value than they will on the safest real estate.

EVILS OF SPECULATION.

The modern speculative system is of such recent origin, and its operations seem so complex to the ordinary layman who is unacquainted with produce exchanges that it was and is little understood. Its evils were more easily recognized than its benefits. Without an understanding of speculation, it was easy to ascribe many evils to it with which it has no connection. "The Modern system of futures" has proved itself a convenient scapegoat for all evils of the grain trade. It is charged with being the cause of low prices and of high prices, with increasing trade

risks, and with diminishing them until there is no chance for profit. A few years ago the farming class clamored for the suppression of the speculative market, while recently the Kansas farmers started a movement to contribute a cent a bushel on all their wheat to a fund for the benefit of the most daring speculator of the Chicago market. As the functions of modern speculation are better understood, its advantages become more apparent, and the speculator is looked upon as something more than a mere gambler. Opposition becomes more rational and less intense.

GENERAL RESULTS OF SPECULATION.

The speculative grower who held his wheat until it seemed an opportune time to sell was the far-sighted conservative man of the first part of the nineteenth century. Conditions have so changed that, unless there is a lack of transportation facilities, or lack of competition among buyers, he is the greatest and most reckless of all speculators, if the degree of ignorance under which he is operating is the test of recklessness. Even many of the large milling and elevator companies insure themselves regularly by hedging.

Statistics show that since the advent of speculation, fluctuations in the price of grain have been of smaller extent, comparing year by year. Such fluctuations as do remain are changes of a more gradual nature, and the gradations are much finer. For example, wheat was formerly quoted in fourths of a cent a bushel, while now it is quoted in sixteenths of a cent a bushel. A half century ago, traders required a margin of 10 cents a bushel, for carrying wheat, now the margin is two cents. With the minimizing of risks, profits for carrying them fell. In part these changes are doubtless the result of other concomitant developments, but there is no question of their being chiefly due to the development of speculation. As to the agreement of present prices of futures with future cash prices, little, if any, increased accuracy of prediction is shown. While there have been improvements in the methods of speculation, there has also been an increase in the size and complexity of the world's wheat market, a factor which would tend to decrease the accuracy of prediction.

The increasing uniformity of price tends to decrease the amount of business done upon the exchanges, for this business is dependent upon price variations. This tendency of prices to remain more steady will be increased with the further concentration of commercial wheat interests. A similar development has taken place in the case of other commodities, such as oil and pork. In these commodities prices are practically fixed by a small group of men who know and in a measure, control supply and demand, and there are few price fluctuations left to serve as a basis for speculative dealings. Consequently operations no longer have their former magnitude. Local consumption of wheat will increase with the growth of population, and less actual wheat will be bought and sold at the terminal and export markets. The force of these influences is certain to be reflected on the speculative exchanges. The opportunity for men to indulge their gambling proclivities by means of the bucket shop; the growing prosperity of the country; the increasing steadiness of the price of wheat on account of the growing perfection of the speculative machinery and of the knowledge of the conditions of supply and demand; and the increasingly great combinations of commercial wheat interests, already foreshadowed by the large combinations of transportation, elevator and milling interests, will continually reduce the importance of wheat as a commodity in the speculative markets of the world, perhaps to the extent of finally eliminating it entirely.—P. T. DONDLINGER, Ph. D., in *The Book of Wheat*.

The Farmer's Ten Commandments

1st. Reflect thereon that the parent plant and seed bequeath equally their good points and bad points their virtues and faults, to their offspring, and that it is incumbent on thee, not only for thine own profit, but also for the advancement of farming, to do thy share towards the improvement of plants. Therefore shalt thou do thy best in this matter for "the seed is the beginning of life."

2nd. Thou shalt gather the seed from proper plants as outwardly bear the stamp of being true to their species, for the characteristics are evident to the eye. As a man's breeding can be judged from his features, so can the character of a plant be seen. Grow thy seed separate from the main crop harvest, thresh and store separate.

3rd. It is the plants coming early to early maturity which yield seeds that in their turn produce early crops and so escape the blighting effects of frost. Therefore thou shalt not collect seed from plants which have run to seed before due time or in any other way are not satisfactory, for the faults, no less than the good qualities, are passed on to the third and fourth generations.

4th. See also that thou takest the seed from plants distinguished for fruitfulness and for growing crops of the best quality.

5th. Thou shalt not gather seeds from plants that show evident signs of weakness or which suffer from any disease, or from the insect pests; for the seed may carry the diseases and the pests to the next generation.

6th. Thou shalt not take seed from a plant grown on a soil which is dirty or poorly cultivated; for an exhausted soil cannot produce a plant bearing seed of good germinating power.

7th. Neither shalt thou take seeds from plants grown upon soil which has been too heavily manured or cultivated; for luxuriance is always the parent of vice. Therefore, give thou preference to plants that have grown and done best under natural farm conditions, for such produce the best offspring.

8th. Thou shalt not gather seed from those plants which ripen latest; the first and best fruit yields the best seed. No procedure is more foolish than that of selling the best grain and using the poorer for seed.

9th. Thou shalt not sow any seed until its germinating powers have been tested. Thou shalt see to it that special care is given to testing oats, barley and the grass and clover seeds, lest they fail to grow and thy seeding is in vain.

10th. Gather not seed from late ripening soils, for then the seed does not ripen sufficiently before the beginning of winter, and the seed is feeble. On the other hand, thou shalt not collect the seed too soon nor before it is thoroughly ripened. Its productiveness and quality for seed thou shalt further insure by heavy fanning, thorough treatment with formalin or bluestone and early seeding on carefully prepared land.

Hold thou by these commandments, so shalt thou have pleasure in thy crops and profit in thy work.
Sask. H. M.

DAIRY

Fundamentals in Feeding Dairy Cows

The first requisite in successful feeding, providing the man is all right, is the cow. Given an individual with a good development of the milking function, and with a properly proportioned milk-making equipment, the skill of the feeder is manifested in his ability to supply her wants most perfectly. Skill in feeding a herd of dairy cows consists in so compounding the grain and fodder ration that the cow will be held up to the maximum point in production, and at the same time, all the nutrients supplied be utilized to this end, and to the maintenance of the body without undue loss. The feeder has one other consideration. He should so arrange his feeding ration that the nutrients shall be supplied in the most inexpensive form. That is, he should have such knowledge of the composition of feeding stuffs, of grains particularly, as will enable him to select those that will supply most cheaply the ingredients the cows require for milk production. He needs to know something of the relative value of different feeding stuffs for milk production, and, knowing that, to arrange to use those that will produce the maximum result in milk at the minimum of cost. This all sounds fairly simple, but a full understanding of the relative values of foods, of the purpose served by the various ingredients of feeding stuffs in the animal's body, and of the adaptability of certain feeds for milk production, is acquired only by a thorough study of the whole question of feeds and feeding, and of the physiological requirements of individuals being fed for certain purposes. The whole makes a subject really too large to be treated briefly. It requires a bit of close study on the feeder's part, a knowledge of the individuals he is working with, and the ingredients he is feeding them.

For the economical conversion of food into milk the character of the food, as well as its composition and digestibility, requires consideration. In winter feeding of cows, succulence in the ration is a prime requirement. A feeder can start safely on the assumption that green grass is superior to all other foods for milk production, and that in proportion to his success in compounding a ration approaching grass in succulence and composition, will his success be measured in producing milk from his herd during the winter season. Experience has demonstrated, although no scientific explanation of the reason why such should be the case has yet been given, that grass dried in the sun, while it gives up nothing but the moisture it contains, will not produce the same results when fed in connection with water, as it will when consumed in a green state. Its composition, so far as nutrients go, is very nearly the same when it is made into hay as it is when green. It is probable, however, that the difference in its feeding value is due to lessened palatability and toughened cellular fibre. At any rate, it is less valuable than grass for milk or flesh production. Succulent food of some kind in winter feeding in