

Calculated Value of a Pure-Bred Sire

A few poor cows may do little permanent harm to the dairy herd, but a poor sire will do untold damage. Frequently, dairymen hold the penny so close to the eye it is impossible to see the dollar a little farther off, and this is just what a man is doing who has a good dairy herd of grade cows, and thinks he is economizing by buying a poor or even common sire.

If the good pure-bred sire improves the milking capacity of his daughters only 1½ pounds of milk at a milking above the production of their dams, this would mean an increase of 900 pounds of milk for the ten months or 300 days an ordinary cow should give milk. The daughter would also be a much more persistent milker—that is, would give milk for a longer time in the year—and she would regain her flow of milk better after an unavoidable shortage of feed, as in a summer drouth. These daughters may certainly be credited with 1,000 pounds more milk per year than their dams produced. At the low estimate of \$1 per 100 pounds, this extra amount of milk would be worth \$10 per year. The average cow is a good producer for at least six years, or until she is eight years old. It will, on the average be four years after purchasing the sire, before his first daughters will have brought in the first extra \$10. Eight dollars and twenty-three cents, kept at compound interest for these four years, at 5 per cent., will equal \$10, so the daughter's improvement or increase of income the first year is worth \$8.23 at the time her sire is purchased. The cash value of the daughter's improvement (inherited from the sire), figured in the same way for each of the last six years she gives milk, is shown in the following table:

Improvement first year.....	\$ 8.23
Improvement second year.....	7.83
Improvement third year.....	7.46
Improvement fourth year.....	7.11
Improvement fifth year.....	6.77
Improvement sixth year.....	6.45

Improvement for six years..... \$43.85
The total increased income of a cow over her dam by having a good sire is, therefore, \$43.85.

In an ordinary dairy herd of thirty-five to forty cows an average of seventeen heifers per year should be obtained, and twelve of these should be worth raising, making it easily possible for a bull to earn twelve times \$43.85, or \$526 per year. This would amount to \$1,578 in the three years that a bull is ordinarily kept in service.

Cost of providing every heifer one good parent:

	Pure-bred	Scrub.
Cost of sire.....	\$150.00	\$ 30.00
Interest, 3 years, 5%.....	22.50	4.50
Cost of keeping 3 years.....	100.00	100.00
Risk, 3 years.....	50.00	10.00
Total expense, 3 years.....	\$322.50	\$144.50
Value at end of 3 years.....	100.00	30.00
	\$222.50	\$114.50

Extra cost good sire, 3 yrs.....	\$108.00
Extra cost good sire, 1 yr.....	36.00
Extra cost good sire, one daughter.....	3.00

Considering the male calves as worth no more than if sired by a scrub, it would then cost \$36 to provide one good pure-bred parent for the twelve heifer calves which are raised each year, or \$3 per heifer. Where else can such an investment be found? Three dollars expended brings an average return of over \$7 per year for six years, or \$43.85 in all. This makes a clear addition of \$43.85 to the income of each daughter or a net profit of \$40.95, and of \$1,470 for thirty-six daughters in the three years. Here is nearly 1,000 per cent. profit on the investment. The original cost of the good sire looks very small beside the \$1,470. It really pays as nothing else on the farm pays to put \$150 into the right kind of a dairy sire that will return practically ten times \$150 within three years.

An examination of details will show these estimates to be conservative. There is plenty of margin left for failures and unfavorable conditions. One thousand pounds of milk per year is a conservative estimate of the improvement of the daughter's production to credit to a good sire, but the details of figuring it may be varied to suit conditions in different herds and different localities. One hundred and forty dollars is certainly a liberal allowance for the purchase of a pure-bred sire, and results here named are based upon having a first-class animal at the head of a herd. A herd of only thirty-five or forty cows is taken for illustration, while a vigorous sire, properly fed and exercised, is sufficient for a herd of forty-five to fifty cows, provided he is not allowed to run with them. There is another distinct improvement of the good sire's daughter, besides her milk production; it is the improvement of her blood or breeding, as the result of which her daughters will be better milk producers. This blood improvement of all the daughters accumulated through a series of years means a remarkable increase in the efficiency of the herd.

It is the common experience of dairymen who have used a really good improved dairy sire that the investment has made them royal returns. The \$150 cost price looks "too big" only to the narrow vision that cannot see the natural improvement of the herd certain to follow. Many a dairyman might have rea-

son to say that he cannot afford to pay a big price for a fine cow, but the same argument does not apply at all to the purchase of an improved bull, because the sire's influence spreads so much farther and faster than that of the cow.

If the heifer calves are to be raised for dairy cows, there is absolutely no business or reason on earth for keeping a scrub bull. The dairymen who think there is pay a heavy price annually for maintaining that tradition. The scrub bull is the most expensive and extravagant piece of cattle flesh on the farm. He does not stop at being merely worthless, but will lose the farmer the price of two or three good bulls every year he is kept. The dairyman could not afford to keep a scrub bull if the animal were given to him, if he were paid for boarding the beast, and given a premium of \$100 per year for using him. The presence of the scrub in so many herds—many times without a single qualification except that he is a male—is an offence and disgrace to the dairy business, and a plain advertisement of the dairyman's thoughtless bid for failure. The only thing on earth the scrub sire is good for is sausage, and it is high time that this plain and simple truth was given practical acceptance on every dairy farm.

By all means get a good dairy sire, if you have to sell two or three cows to do it. The improved sire is, without question, the most economical investment in any dairy herd.—WILBER J. FRAZER.

POULTRY

Tuberculosis in Poultry

In the 1908 report of the Ontario Agricultural College, the professor of bacteriology deals at length with tuberculosis in poultry, describing the means of infection, course, symptoms and preventive treatment for the disease. The question is dealt with partly from the standpoint of the bacteriologist, but a good many practical suggestions are made that may be of interest to our poultry readers.

NATURE OF AVIAN TUBERCULOSIS ATTACK

Tuberculosis may exist extensively among fowls, especially in large flocks, but seldom kills enough birds at one time to draw particular attention of the owner to the trouble. Many farmers say that they have been losing a bird or two occasionally for a year or more, and that the loss is gradually increasing. But it is not always so gradual. Tuberculosis of birds is confined mostly to chickens, although other fowl may contract the disease. Two interesting cases were examined in wild geese which had been kept some time in captivity. Both were badly affected, and from these we transmitted the disease to chickens. Pheasants, turkeys and pigeons may be affected. Authorities differ as to the susceptibility of ducks. Singing birds in captivity are said to be highly susceptible.

SYMPTOMS

Diagnosis is not easy. There is no noticeable symptom of tubercular infection shown by live birds until the disease has progressed far enough to cause emaciation, which is nearly always present, and in advanced cases extreme. The comb, wattles and the skin about the head usually becomes pale. Emaciation is usually accompanied by lameness, and there is nearly always a persistent diarrhoea, the faeces appearing yellowish or greenish-white. In the latter stages of the disease the feathers become ruffled, and the fowls weak, more or less mopy, and move about little. The eyes are bright in most cases until death is near. Appetite is good throughout sickness, and ravenous until a few days before death. It is often difficult for amateurs to distinguish the symptoms of tuberculosis from those of some other diseases.

POST MORTEM APPEARANCE

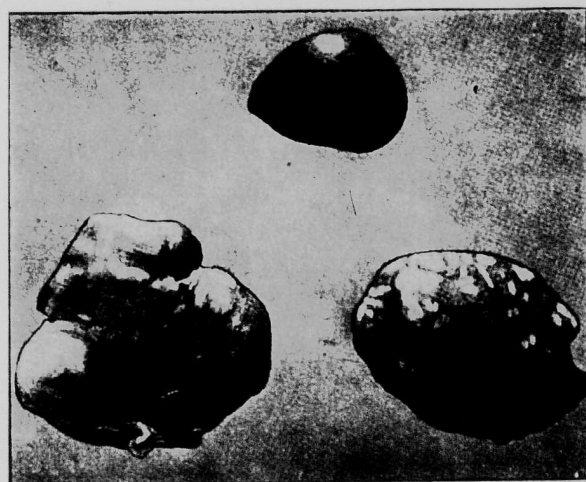
The liver is almost invariably affected. It is usually enlarged, and studded more or less abundantly with yellowish-white nodules, of a somewhat cheesy consistency, varying in size from a pin-head, or even smaller, to one-quarter inch or more in diameter. The nodules protrude more or less, and may be readily separated from the surrounding liver tissue. In this respect, the lesions vary from those of black-head, in which disease they are sunken below the surrounding tissue, are more yellow in color, and may be much larger. We have in some cases found a mixed infection with tuberculosis and black-head in the same organ. The spleen, a small, rounded, purple organ, about half an inch in diameter, is frequently affected, and, in consequence, greatly enlarged, sometimes to three or four times the original size, and contains nodules of the same character as those in the liver. The intestines may be affected, in which case rounded masses of varying size will be found in the intestinal walls. The mesentery (the thin membrane to the border of which the intestine is attached) is occasionally dotted with nodular masses. The kidneys, lungs, spleen, ovaries, skin and bones may be affected.

GERMS DISTRIBUTED IN DROPPINGS

Tuberculosis is caused by a minute bacterial organism, bacterium tuberculosis of birds. The bacteria gain entrance to certain portions of the body,

and multiply there, causing the formation of the nodules or tubercles seen on autopsy. The spread of the disease occurs when the bacteria are transferred directly or indirectly from the affected birds to the healthy ones.

If an examination is made of the tubercles occurring on the walls of the intestine, they will be found in many cases to have a cavity in the center, which communicates with the interior of the intestine. A microscopical examination of the intestinal contents at such points show that enormous numbers of tubercle bacteria are present. The conclusion that the bacteria are liberated with the droppings is unavoidable. We have made microscopic examinations of the droppings in a number of cases, and found the tubercle bacteria present. The droppings of tubercular fowls must, therefore, be regarded as one of



THE SPLEENS FROM FOWLS THAT DIED OF TUBERCULOSIS ARE SHOWN IN LOWER PART OF THE CUT. THE UPPER FIGURE SHOWS A HEALTHY SPLEEN.

the most important sources of infection of the healthy stock. The common farm practice of feeding from the ground, or in low dishes or troughs, furnishes ample opportunity for the food to become fouled with feces, and one or two sick birds passing tubercle bacteria might easily serve to infect a large percentage of a flock. Although sunlight is rapidly fatal to this germ, it does not have the opportunity to act freely on all infectious material. Indoors, the bacteria may remain alive and dangerous for many weeks, and may infect the healthy birds. There is always the possibility also of carrying infected feces on the feet to food outside of the chicken house. Another dangerous practice, all too frequent, is that of leaving carcasses of birds that have died of tuberculosis to be eaten by the hogs or chickens.

CONTROL OF TUBERCULOSIS IN FOWLS

There is no cure for tuberculosis in fowls, and attempted treatment is a waste of time and money expended for so-called remedies. The only course open is to adopt measures for eradicating the disease from flocks already infected, and for preventing future infection.

Eradication.—The quickest and most effective method of eradicating the disease is to destroy all the fowls, and thoroughly disinfect the premises.



LIVER OF A HEN THAT DIED OF TUBERCULOSIS. THE ORGAN IS ENLARGED AND STUDDED WITH YELLOWISH WHITE NODULES.