

Rhubarb and Asparagus.

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No vegetable responds more readily to a minimum amount of cultivation than rhubarb, and, as it makes a first-class substitute for fruit, it should be much more extensively grown, especially in a province like this, where our fruit resources are extremely limited. Two methods of starting a bed of rhubarb may be adopted, either by sowing the seed or planting roots, but the latter is much more preferable, for, except in rare instances, rhubarb will not come true to type from seed; in fact, retrogression in every feature is very apparent in seedling rhubarb. If a few old roots can be obtained so much the better, and these may be divided with a sharp spade into as many pieces as there are eyes. Care must be taken, however, to ensure the fact of there being an eye or bud to each root, as they will not grow if this is missing no matter how large the root may be. Rhubarb is a particularly heavy feeder, and this fact must be taken into consideration when preparing the land for planting. An old piece of garden, which has been manured for a few years, will make an excellent situation, if plowed deeply and heavily manured before planting. Do not be afraid of putting on too much manure, for in this point lies the main secret of successful rhubarb growing. The plants should be set out in rows five feet apart each way, care being taken not to bury the crowns, which should be about level with the surface. Fall planting gives the most satisfactory results, and a coating of well-rotted manure spread on the bed to the depth of six inches every fall will materially assist development. If the above instructions are followed out you will be surprised at the marvelous growth of your plot of rhubarb. Never allow the plants to run to seed, but on the first appearance of flower-spikes remove them, as they greatly tend to lessen the vigor, besides causing the whole plant to become tough and insipid. For a large growing variety I would recommend *Tottle's Improved*, while *Victoria* and *Linneus* are more appreciated by some on account of their brighter color.

A word or two with reference to a disease which made its appearance at the Farm in 1895. The symptoms of attack are a reddish discoloration of the leaves, which gradually spreads to the stems, and the whole plant dies off long before its appointed time. The trouble is caused by parasitic fungi, and the following remedy has been used with excellent results:

Copper sulphate (bluestone)..... 4 lbs.
Quicklime..... 4 lbs.
Paris green..... 4 ozs.
Water, 1 barrel..... 40 or 50 gal.

Mix thoroughly, and keep constantly stirred while using. This should be sprinkled thoroughly on the crowns before starting in the spring, and after losing their leaves in the fall. I would suggest, where the ingredients for this mixture are not easily available, using the ordinary bluestone liquid in the same proportion as when treating wheat for smut.

ASPARAGUS.

This is another hardy perennial vegetable which is not grown as extensively as its excellent qualities and ease of cultivation deserve. As it is the earliest and most delicious of the season, it invariably commands a high price, and everyone possessing a garden should find a corner for a bed of asparagus. Manitoba and the Northwest seem specially adapted for the successful cultivation of this vegetable. In European countries laborious preparations have to be made before planting, but the labor necessary here is comparatively trivial, as will be seen from the following: Plow the land deeply in the fall, having previously spread a liberal coating of rotted manure over it. Planting should be done the following spring before any growth has commenced, using two-year-old roots if possible. These should be planted in rows two feet apart, and one foot apart in the row, spreading the roots out flat and burying the crowns about three inches. Nothing should be cut from the plants until the spring following, and even then it should be done sparingly; but the second year from planting all that is required may be taken, provided enough shoots are allowed to grow to retain the vitality of the plants. When roots are not obtainable the bed may be sown, the only difference being that a longer time is required to bring it to the eating stage. When this plan is adopted the seed should be sown thinly in rows the same distance apart as in planting, but I wish to particularly emphasize the following. *Thin out the plants to one foot apart as soon as they are an inch high*, for if allowed to obtain a strong root-hold it is almost impossible to dislodge them. A liberal sowing of salt before growth commences in the spring and a light coating of manure in the fall tend greatly to the luxuriance of the crop and will well repay the additional expense. Up to the present the variety known as *Conover's Colossal* has been almost universally grown, but after repeated tests we have found the following to supersede the above both in productiveness and flavor: *Columbia Mammoth White* and *Barr's Mammoth*. In conclusion I would say that a bed containing 100 to 150 plants is sufficient for an ordinary family.

VETERINARY.

Air Space and Bovine Tuberculosis.

To the Editor FARMER'S ADVOCATE:

SIR.—The statement is made by the N. Y. State Tuberculosis Commission that tuberculosis may be conveyed to man by eating infected meat, and that an animal affected with tuberculosis will sooner or later give milk infected with the germ of the disease, and so milk is not only a possible but very probable source of tuberculosis in both children and adults. So the question of tuberculosis in animals becomes one of the most vital subjects to the well-being of the general community, both urban and rural, and any possible cause of this disease should at all times be sought out and removed. In man, overcrowding and bad ventilation are some of the most fruitful causes of this disease; and old army records abundantly prove the same thing in reference to the horse. I do not think I am going too far when I state that horses are better housed than cattle, and both more air space and floor space allowed per head and per pound. This question in years past was not of such very great importance, for stables were mostly built of wood, and the carpentering was not of the very best quality, so the supply of fresh air was practically unlimited. But with the advent of the modern bank barn, with its almost impervious walls and close windows and doors, the question of air space and also of air supply becomes one of first-class importance. On first-class farms, with better bred and better fed stock, and stock which during a considerable period of the year practically lives in the barn all the twenty-four hours, the necessity for plenty of fresh air all the time is still more accentuated.

Men in barracks, according to army regulations, are given 600 cubic feet per man, and it would be better if this were increased to 1,000. Hospitals generally supply from 1,200 to 1,500 cubic feet of air space. Now cattle, according to these estimates, would require a space varying from 3,000 to 5,000 cubic feet, but as they can bear a far more frequent and abrupt change of air than man, a much smaller air space than this will suffice, and for a herd of cattle of all ages 1,000 to 1,500 cubic feet, with a floor space of about 100 square feet, would do. A general rule of two cubic feet of air space per pound of animal, and one-twelfth as much floor space as cubic space, will do very well, always bearing in mind that frequent change of air must be provided at the same time.

The stables for the fattening cattle at the Ontario Agricultural College, Guelph, are 50 x 120 x 10 feet. This gives a cubic space of 60,000 feet. In it are housed about 70 cattle, the average weight of which must be considerably over 1,000 pounds. Now, according to the rule which I have laid down, these would require about 140,000 cubic feet of air space, together with frequent change of air. This change of air is only provided for by door and window ventilation, and is fairly ample in summer. But even with all these open, on my visit to the stables, the smell was none of the best. What it must be in the winter nights with all of them closed I do not know.

I have examined a great number of these bank barns, and only in the very best of them do I find 600 cubic feet of air space allowed per head, and with this fairly free admission of air, and in some of the worst not more than 250 feet are allowed, and little if any change of air is provided for during the night. Tuberculosis, it is said, is on the increase among our cattle, and the tuberculin test is being freely used to find it out. Cattle are being slaughtered to prevent its spread, and our cattle trade is harassed and in danger on account of this disease.

Perhaps many may call me a crank on this subject, but I really think that a little more attention along these lines, with a free application of fresh lime spring and fall to the walls and woodwork of the stables, would at least have a beneficial effect, and in some cases the disease might be prevented.

J. H. GARDINER, M. D.

Experience with the Tuberculin Test.

To the Editor FARMER'S ADVOCATE:

SIR.—Our attention is frequently drawn at the present time to articles in the agricultural journals on the tuberculin test. While some persons condemn the whole proceeding as a farce and a scheme, there is certainly a feeling of unrest, for many have come to realize that tuberculosis exists where it is sometimes least expected, as experience has shown the writer, and from that experience I feel justified in making a few statements public.

In the fall of 1894, while practicing my profession (veterinary surgery) in New York State, I was favored with an appointment from the State Board of Health to make tuberculin tests, which gave me more experience in a short time than a life-long private practice. Under the Act an appropriation of some \$20,000 was set apart for the work to pay the expenses of testing, official salaries, and for cattle destroyed, but the funds were soon exhausted and the work discontinued, and I believe no sum of any importance has been set apart since for that special work, although there were hundreds of applications from owners to have their herds tested that were never responded to. Our instructions were to proceed to Schenectady place and make a careful examination of the herd, and if tuberculosis was found to exist to report to the secretary, when an appraiser was sent, who set the

value and reported to the Board. A scale of values was fixed; for instance, no grade cow was valued at over \$60, or registered animal over \$120. One-half of which was allowed when post-mortem proved them tuberculous.

My first trip was in the vicinity of Schenectady, N. Y., where we made a test of all the herds supplying milk to that city, and although I have not the records before me I remember distinctly that the number of animals responding to the test in one herd had no relationship as to numbers to those responding in another; some herds being entirely free, while in one, the largest dairy supplying the city, over one-half the animals responded to the test. This same herd presented the finest appearance of any we saw, showing that without the test no man living is in a position to say which is healthy and which is not. Consequently, with this fact in view, it is all-important that none but qualified, careful men be entrusted with so important an operation, for it is exceedingly desirable that when the test has been made, the owner, and the public who depend upon that herd for milk, should have the facts without any doubts whatever. It may not be out of place to map out a course of procedure: First of all the operator should be supplied with freshly prepared, reliable tuberculin, a strong hypodermic syringe equipped with at least three strong needle points, at least half a dozen reliable thermometers which all register alike, and a sufficient number of record charts. The animals are all confined in their stalls the day previous to receiving the injection, which should be given at 6 p. m., and before which the operator must have an accurate account of each animal's temperature, taken at intervals of at least three hours during the day and evening up to 10 p. m. At 6 a. m. a record of all temperatures must be taken, and at each succeeding two hours during the day, and up to 8, or better still, till 10 p. m. that evening. It will be found that before the injection the normal temperature will vary as much as two degrees in four or six hours, consequently it is all-important that those animals are known before the injection has been made. No definite rule can be laid down as to the number of degrees of rise an animal may show and be allowed to escape condemnation, so long as they do not exceed two degrees over the previous day, and are in perfectly healthy surroundings, and no well-marked cases are in contact with the herd. Again, in some debilitated animals a positive rise of one degree is to be regarded as very significant, for in the latter stages of tuberculosis, where the system already contains a great amount of broken down tubercular matter, it has been proven that very little rise results from the further introduction of a cultivated lymph in the system; consequently it can be easily seen how important a matter it is that only the most careful, competent, and, if possible, experienced men be employed, upon whose judgment so much depends. Again, there are certain conditions under which it would be positively wrong to make the test; for instance, in an animal suffering from any feverish disease or condition, or such as being in heat, or in the advanced stage of pregnancy, for in those animals the temperature varies very much, and any variation might be regarded as suspicious, and yet be very misleading. No food or water should be allowed the day following the injection until at least 4 p. m., for during or after a meal the temperature runs up from one to three degrees, as also in mastication, while a drink of cold water will tend to equally lower it.

Wherever we found old, low, unsanitary houses with insufficient light and ventilation, and bad drainage, we also invariably found tuberculosis, and in no breed did it predominate, yet none were exempt where their surroundings were unsanitary or had been exposed to contagion. [NOTE.—From the official report of the N. Y. State Tuberculosis Commission we find that in 1894 in 21 counties some 2,417 cattle were examined, of which 405 were condemned and slaughtered. Of these 287 were common cattle, thus controverting the opinion heretofore generally held, that common bovine animals have immunity from disease.—EDITOR.] It is the writer's opinion that with due regard to the sanitary surroundings of our herds and their freedom from affected animals, tuberculosis will in a few generations not attract so much attention as at the present time.

Many opponents of the test boldly assert that they are not in any way alarmed about using milk from tuberculous cows and would as soon drink it as that which they knew to be perfectly free; and for such people I can only express my greatest sympathy, for how many persons are made miserable all their lives by conditions of indigestion, diarrhoea, abnormal conditions of the liver, kidneys and spinal cord, to say nothing of the hundreds of infants who die annually from their peculiar diarrhoea, a large percentage of which is unquestionably tubercular. Just here I may add that through such a case as this the cows supplying milk to Schenectady were tested. While after repeated attacks of diarrhoea in an infant the attending physicians suggested stopping the milk from that particular cow, after which no further trouble presented itself. The cow on being tested responded heavily. The writer also distinctly remembers being requested to examine a herd with a bad record on account of different cows having been lost within a few years and the wife of the owner had died from the disease two years previously. Every cow on the place responded and post-mortem proved con-