The Purchasing of Fertilisers.—Contd.

there is no doubt about the safety of that method. If you are using a fertiliser which in this weather tends to be damp and sticky it is an advantage to broadcast, but if you are going to put the fertiliser along the rows the best methods is to spread the fertiliser first, cover it at least with an inch or two of soil, and then plant your cane setts above it. Another method is to wait until your cane shoots are up and then run a furrow along the side and put the fertiliser in that way. But of all the methods so far as we can see, applying the fertiliser in the same row as the cane setts but separated by an inch or two of soil, is quite a good method. Certainly it is reliable as regards cane.

There is another point that crops up, and that is, "When should you apply the fertiliser." If no bad results are to be experienced by applying the fertiliser when you are planting there is no doubt that with most of our fertilisers the crop has an advantage in being planted with the fertiliser. There is a possible exception in the case of nitrate of soda where top dressings during wet weather are probably best. With that exception I think it is important that plants should get a good start with fertiliser close at hand. With regard to the plots we have just come from you will have noticed that in the plots where Mr. Storey has had healthy and diseased cane planted that cane is behind all the other fertilised plots, the reason being that complete fertiliser was given to these about two months later than the others. I think the result is certainly noticeable.

While that cane is altogether better than the control plots with no fertiliser, it certainly is not so good as that where fertiliser was applied at the time of planting. In this case the fertiliser was put in and mixed with the soil and the setts placed in after the mixing, so that there was no intimate contact with the setts.

Mr. Kramer asked if Mr. Williams would explain what effect muriate of potash and sulphate of potash had on cane.

Mr. Williams replied that so far as the effect of both these were concerned, he did not think there had been any decisive experiments carried out in this country. Knowing that cane was one of a species which were lovers of salts in the soil, on that ground he thought muriate of potash probably would be the better form to use, but no definite experiments had been carried out in the country that he was aware of.

The following paper by Mr. C. J. Rapson, Chaka's Kraal, on "Streak Disease Control" was then read.

CONTROL OF STREAK DISEASE IN UBA CANE.

(Paper by C. J. RAPSON, Chaka's Kraal).

I honestly believe that we are at the junction of two ways; one leading to a continuation of a certain amount of prosperity in our industry, the other to the stagnation and ultimate ruin of our industry.

By ultimate ruin, I do not mean a sudden collapse of our industry; very favourable growing conditions may lull us into a false sense of prosperity, but if immediate and general steps are not taken to stamp out the disease, the time will most certainly arrive when, with unfavourable growing conditions, plus the effect of the ravages of the disease, a more acute state of depression than the period we have just passed through will eventuate and this will surely lead to the industry's ruin.

Let us assume, from a grower's point of view, a constant reduction of 10 per cent for his product or in other words, knowing your present income calculate on receiving 10 per cent less annually, and tell me if you would be content? Certainly, so far, no reliable figures are available as to the loss likely to be suffered by any planter with Streak disease in his cane, but as a planter I state definitely that cane with Streak disease suffered very heavily in comparison with healthy cane during the droughty period of the last two years.

As a disease Streak can be a most puzzling study; I have heard planters state that in a field they have come across Streak diseased stools flourishing as well as healthy cane stools near by; this is so, and I can well believe that where there is an abundance of plant foods that such cases will occur; the question arises though, "how many of our cane fields have an abundance of plant food?" Speaking generally the fields are lacking in plant food and therefore, speaking generally the state of healthy and infected cane showing no appreciable difference does not exist.

Again, the difference between plant cane infected and plant cane healthy under favourable growing conditions does not show a marked difference and it will be stated again as it has been stated in the past, that there is no advantage to be gained by selections of clean canes. Plant cane crop though if only one of say three or four croppings and diseased ratoons do show a marked difference to healthy ratoon. Let us as an industry take heed and work with a fixed object of eliminating the disease whilst it is a feasible proposition; a little neglect now, and it may be an impossibility in the near future. How often have

practicable proposition, and I would therefore advocate for the average planter that he select tops to plant say five to 10 acres. In 12 months he would have a useful stand from which to plant the ensuing year, which should supply sufficient first class cane for 30 to 60 acres of plant.

When planting whole sticks of cane, place the stick in the drill before cutting into pieces; this is advisable as it localizes any infected sticks inadvertently planted. Should any leaf of a stick planted show signs of Streak disease shortly after being planted the whole original stick must be removed and this can easily be done if the canes are cut in the drills. Too much care cannot be spent at this stage, as portions of cane are liable to remain dormant in the ground for many weeks and even months.

If the above method of selecting plants is followed it will be found that little or no cane will reproduce Streak disease, but as a safeguard against blank patches in fields I have found it useful to plant beds consisting of clean tops round about the fields. These are then transplanted to fill up any blanks caused by removal of Streak infected sets.

Need for Patience.

Do not be downhearted if, after many rogueings, and when your canes are say three to four feet high, you find, as it were, a heavy new infection has taken place; this is probably the last of your latent diseased sets come to light. Take them out, if not out of your whole seasons plantings then out of sufficient to enable you to have clean plant for next year. You have possibly done everything but score. Do it thoroughly once again now and even at the risk of having blanks in your fields, and you will be well repaid.

I know how disheartening it is to take out a fine healthy stool of cane, but by taking one out now you are probably saving many others in its immediate locality from infection.

Assuming that my theory of latent disease is admitted, the question naturally arises as to how do the sticks become infected at all. The answer, so far, must be purely theoretical. Assume for a moment that a clean sett of cane has been planted in say October of this year, and after the cane has grown to say three or four feet it becomes infected by the insect carrier . In all probability only one stick in a cluster will be so infected. During the growing period the infection will remain in the one stick only, but during the winter months or the non-growing period the infection will not only travel down the infected stick but enter the butts of all canes of that particular group. But as these latter are not making new leaves they do not show that they are actually infected. Should any of these latter sticks be planted in the spring of the ensuing year they will, undoubtedly, reproduce Streak disease in the course of time and they are what I term "latent" setts. There are many factors determining the stage at which the disease will become apparent; good or bad growing conditions, amount of infection in the butt of stick, length into which plant setts have been cut when planting, and the bud which has germinated.

An Actual Experience.

Now to illustrate this point I will give you actual figures of a 5 acre block planted with selected cane from a 5 per cent. infection field.

In this instance selected canes were picked by myself and every leaf examined for signs of streak disease, and no stick bearing leaves even doubtful were planted. On ½ an acre of the 5 acres tops only were used, the balance of the sticks being planted in the 4½ acres.

The first three rogueings, which were at intervals of from three weeks to one month, averaged 15 setts of disease per rogueing and only on the 4½ acres were these found, no disease being discovered on the ½ acre of tops.

This field was planted on 15th October, 1924, and the final rogueing took place during the last week in February, and 33 setts were taken out. These again were only found on the 4½ acres of whole canes planted, and every one without exception were butt setts.

Let me here explain what I mean by rogueing. My first, second, and third rogueing consists of removing the whole original cane planted, whether it has been cut into two or more pieces and whether Streak disease is apparent in more than one germinated eye or only in one germinated eye; to ensure this the stick is reconstructed when dug out. My fourth and final rogueing consists in removing only the canes actually showing streak disease, and in this latter case consists only of butt ends of original plants. This last rogueing should be done just prior to winter.

To summarize:

The spread of the disease is by an insect carrier.

One stick infected by the insect carrier is multiplied by the number of sticks on that particular stool.

Sources of spread of disease: infected fields contiguous to clean plant fields; old ratoons containing disease from previous crop on fields newly planted with clean cane; mealies bearing Streak disease.

Spread of disease will be in proportion to amount of disease present, due regard being paid to season, whether wet or dry.

At the conclusion of his paper Mr. Rapson exhibited some young cane and demonstrated how the disease extended from one section of the sett to others.

The Chairman then thanked Mr. Rapson for his interesting paper.

Mr. H. H. Storey, Government mycologist then read the following paper entitled "The Year's Progress in Cane Disease Investigations."