Some Experiments in the Harvesting of Burned Cane

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The only papers that appear to have been published hitherto in South Africa on this matter both appeared in 1924.

G. C. Dymond, at the Annual Congress of the South African Sugar Association in April of that year, gave a very complete account of the theories explaining the changes that take place in cane after cutting, and quoted results of a considerable number of experiments comparing the loss in weight, purity, glucose ratio and sucrose contents of burnt and hand-trashed cane respectively of various ages after keeping for several days.

He found that while the loss in weight determined daily for nine days of burnt cane was in all cases considerably higher than that of trashed cane, the deterioration of the quality of the cane as shown by fall in purity and sucrose content and increase in glucose ratio was throughout much more advanced in the trashed than in burnt cane.

Dymond's paper may be found in the Special Congress number of the "South African Sugar Journal" published in June, 1924.

The "South African Sugar Journal" for May, 1924, contains a record of a very large number of elaborate and painstaking experiments by L. F. de Froberville in this matter.

De Froberville also records that the average loss in weight on keeping of burnt cane is much greater than that of trashed cane under all circumstances tried, whether the cane was cut up into short lengths or not, whether it was kept under cover or in the open, or whether the canes were straight or curved, the comparison being carried on for 12 days.

He found, however, contrary to Dymond, that the average loss in sucrose of burnt cane, while less than in trashed cane for the first three days, thereafter shows a marked increase, eventually becoming in general more in the burnt than in the unburnt cane.

In the comparison of purity and glucose ratio, de Froberville records differences in favour of the burned cane over a period of 10 days.

Neither of these observers appear to have studied experimentally the changes in burnt cane left standing in the field, although Dymond relates instances of accidental large fires in Zululand plantations where the purity of the cane juice fell very gradually during harvesting over a prolonged period, the purity in one case being as high as 87% after 10 days, and in another case the purity decreased gradually from 91.6% on the first day to 82% on the ninth day. The calculated sucrose per cent. in these cases showed in general a temporary increase followed by a gradual fall. The fall in yield of cane per acre is not recorded, so that it is not possible to calculate the deterioration in yield of sucrose per acre.

Some tests in this matter were carried out at the Sugar Association's Experiment Station at Mount Edgecombe during the recent harvesting season.

Three uniform adjacent plots of Uba cane planted in December, 1925, and treated similarly throughout, were selected, one plot being hand-trashed in the ordinary way and the other two fire-trashed. The burning was done on December 8th, 1927, during a warm dry spell of weather, but to moderate the intensity of the fire it was done early in the morning with the dew still on the leaves.

Of the two fire-trashed plots, one was cut the same day and the other allowed to stand.

The cane from the two plots that were harvested, one hand-trashed and one burned, was weighed off into heaps of 1,000 lbs. weight each and allowed to stand in the field, one of the heaps being re-weighed and analysed every day or two over a period of 16 days. Similarly, portions of the burnt cane left standing were cut and analysed periodically, in this case the tests being continued over 28 days or until the plants had begun to give signs of active growth from new shoots, by which time the purity had fallen from 92.8% originally to 77.7%, and the sucrose content from 14.3 to 11.0%.

The detailed results from the three experiments are shown below :—

ANALYSIS OF HAND TRASHED CANE.

Days after Cutting	—	2	4	6	7	9	11	14	16
Total weight at time of analyses of original 1,000 lbs. heaps	1,000	970	954	944	925	930	903		
JUICE—									
Analyses (hand mill samples)									
Brix	21.5	20.9	22.1	22.9	22.9	22.0	23.0	22.5	22.3
Polarization	75.8	67.8	74.5	74.6	73.0	67.8	73.2	61.0	60.2
Sucrose per cent	19.93	17.90	19.55	19.51	19.12	17.79	19.13	15.97	15.79
Purity	92.7	85.6	88.5	85.2	83.5	80.7	83.2	71.0	70.8
JAVA RATIO—(calculated)	80.5	78.4	77.9	76.2	76.2	76.6	74.9	75.3	75.0
BAGASSE ANALYSES—(hand-milled samples)—									
Sucrose per cent	10.9	9.0	9.5	9.3	9.0	9.0	8.9	8.3	—
Moisture per cent	53.0	49.0	51.0	52.0	50.0	53.5	51.0	55.0	—
Dry matter per cent	47.0	51.0	49.0	48.0	50.0	46.5	49.0	45.0	—
Soluble Solids	12.3	11.0	11.2	10.3	11.2	11.7	11.1	12.2	—
Fibre per cent	34.7	40.0	37.8	36.7	38.8	34.8	37.9	32.8	—
FIBRE PER CENT. CANE	14.9	17.4	16.3	16.7	17.5	16.5	17.8	16.9	—
Sucrose in juice per cent cane	11.36	10.11	11.14	10.63	10.52	9.34	10.14	7.75	—
Sucrose in bagasse per cent cane	4.69	3.92	4.09	4.23	4.05	4.28	4.18	4.27	—
TOTAL SUCROSE PER CENT. CANE	16.1	14.0	15.2	14.9	14.6	13.6	14.3	12.0	11.8
Sucrose per cent original weight	16.1	13.6	14.4	14.1	13.5	12.6	12.9	—	—
Fall in sucrose per cent of original	—	15.5	10.6	12.4	16.1	28.0	26.1	—	—
Rainfall in inches since preceding test	—	0.10	0.03	—	—	0.06	—	0.115	—
Mean temperature since preceding test (deg. F.)	—	72°	72°	68°	74°	71°	72°	72°	71°

ANALYSIS OF BURNT CANE.

Days after cutting	—	2	4	5	6	7	9	11	14	16
Total weight at time of analyses of original 1,000 lbs. heaps	1,000	974	963	—	962	933	914	893	—	—
JUICE—Analyses (hand mill samples)—										
Brix...	20.8	21.6	21.3	21.6	21.1	21.5	21.6	19.9	20.1	20.2
Polarization	72.1	76.1	73.5	69.4	71.0	72.6	71.8	60.0	59.0	53.7
Sucrose per cent	19.04	20.01	19.33	18.25	18.71	19.10	18.88	15.87	15.61	14.21
Purity	91.5	92.6	90.8	84.4	88.7	88.8	87.4	79.7	77.7	70.3
Java ratio (calculated)	78.5	78.0	78.5	78.5	80.0	79.5	76.4	76.2	79.7	78.0
BAGASSE ANALYSES—(hand-milled samples)—										
Sucrose per cent	9.4	10.2	10.0	8.9	10.2	10.1	9.0	8.0	9.4	—
Moisture per cent	53.5	52.5	53.5	52.5	54.5	54.0	52.5	53.0	55.5	—
Dry matter per cent	46.5	47.5	46.5	47.5	45.5	46.0	47.5	47.0	44.5	—
Soluble solids per cent	10.7	11.5	11.5	11.0	12.0	11.9	10.7	10.5	12.7	—
Fibre per cent	35.8	36.0	35.0	36.5	33.5	34.1	36.8	36.5	31.8	—
FIBRE PER CENT. CANE	15.2	16.2	15.6	15.3	14.7	14.8	16.6	17.5	16.2	—
Sucrose in juice per cent cane	10.95	11.01	10.73	10.59	10.48	10.79	10.38	8.25	7.65	—
Sucrose in bagasse per cent cane	4.0	4.59	4.45	3.74	4.49	4.39	4.05	3.84	4.79	—
TOTAL SUCROSE PER CENT. CANE...	15.0	15.6	15.2	14.3	15.0	15.2	14.4	12.1	12.4	11.1
Sucrose per cent original weight	15.0	15.2	14.6	—	14.4	14.2	13.2	10.81	—	—
Fall in sucrose per cent of original	—	*(1.3)	2.7	—	4.0	5.3	12.0	28.0	—	—
Rainfall in inches since preceding test ...	—	0.10	0.03	0.09	—	—	0.06	—	0.115	—
Mean temperature since preceding test (deg. F.)	—	72°	72°	—	68°	74°	71°	72°	72°	71°

*(1.3) Gain

ANALYSIS OF BURNT CANE LEFT STANDING.

Days after burning	2	4	6	7	9	11	14	16	21	28
JUICE—Analyses (hand mill samples)—										
Brix	20.3	20.3	19.6	20.0	19.4	19.1	18.1	17.8	17.8	17.9
Polarization	71.2	70.5	67.9	70.1	67.5	65.0	60.5	58.0	58.0	52.0
Sucrose per cent	18.84	18.66	18.00	18.55	17.87	17.27	16.14	15.50	15.56	13.9
Purity	92.8	91.9	91.8	92.7	92.1	90.4	89.2	87.1	87.4	77.7
Java Ratio (calculated)	75.8	77.3	76.7	78.9	79.2	78.2	82.7	79.0	79.9	79.0
BAGASSE ANALYSES—(hand mill samples)										
Sucrose per cent	8.7	8.8	8.8	9.2	9.6	8.9	9.0	—	—	—
Moisture per cent	47.5	53.0	54.0	53.0	53.0	52.0	54.0	—	—	—
Dry matter per cent	52.5	47.0	46.0	47.0	47.0	48.0	46.0	—	—	—
Soluble solids per cent	9.9	10.0	10.0	10.3	10.8	10.2	10.5	—	—	—
Fibre per cent	42.6	37.0	36.0	36.7	36.2	37.8	35.5	—	—	—
FIBRE PER CENT. CANE	19.2	15.9	16.4	15.4	16.3	17.01	16.5	—	—	—
Sucrose in juice per cent cane	10.36	10.64	9.81	10.76	9.83	9.50	9.17	—	—	—
Sucrose in bagasse per cent cane	3.92	3.78	4.0	3.86	4.32	4.01	4.19	—	—	—
TOTAL SUCROSE PER CENT. CANE	14.3	14.4	13.8	14.6	14.2	13.5	13.4	12.2	12.3	11.0
Sucrose per cent original weight	—	—	—	—	—	—	—	—	—	—
Fall in sucrose per cent of original	—	*(0.7)	3.5	*(2.1)	0.7	5.6	6.3	14.7	15.4	23.1
Rainfall in inches since last preceding test	0.10	0.03	0.09	—	0.06	—	0.115	—	1.065	1.75
Mean temperature since preceding test	72°	72°	68°	74°	71°	72°	72°	71°	75°	76°

*(0.7) and (2.1) Gain

The yields of cane per acre from the two harvested plots were 29.40 tons from the burnt and 26.93 tons from the unburnt cane.

The soil in which the cane was grown was a clay loam somewhat deficient in organic matter for a soil of this type, also in phosphorus, but otherwise well provided with the ordinary plant-foods. It has been growing cane, with few intervals, for the last 40 or 50 years.

The weather was unusually dry for this season of the year, only a few light showers being recorded over the greater part of the experiments. The temperatures were uniform and about normal or slightly less than normal for December.

The loss in weight after harvesting for the first six days was uniformly slightly less in the burnt cane than in the trashed cane, but the average difference between the two was only 1%, which cannot be considered as significant under the circumstances; after the sixth day the loss in weight was slightly greater in the burnt than in the trashed cane.

Turning to the sucrose content, we find that the percentage loss of original sucrose is much greater in the trashed cane than in the burnt cane left on the ground, the average losses in sucrose recorded over the first week being more than 4½ times as great in the unburnt as in the harvested burnt cane. At the end of this period the sucrose, calculated on the original weight of cane, had fallen from 16.1 to 13.5% in the case of the unburnt cane and from 15.0 to 14.2% with the harvested burnt cane, while the burnt cane left standing showed an apparent increase in sucrose content from 14.3 to 14.6% of cane. However, the latter figure does not take into account the loss in weight of the burnt standing cane, which was, of course, impossible to determine.

During the second week, however, the sucrose in the burnt cane on the ground began to diminish rapidly, and after 11 days from the beginning of the experiment showed greater loss than the trashed cane.

The experiment was discontinued at this stage in the case of the harvested cane, but was continued with the burnt standing cane for a further 17 days, during which it gradually fell in sucrose content from 13.5 to 11.0%, representing a loss of original sucrose of about 1% per day.

The changes in purity show further the very much slower rate of deterioration of burnt cane compared with trashed cane over the first nine days after harvesting.

During this period the burnt harvested cane had shown a uniform fall in purity from 91 to 87%, after a small temporary rise to 92% on the second day. After nine days there was a marked increase in rate of deterioration, and thereafter the purity of unburnt and the burnt cane on the ground remained about equal.

The unburnt cane showed a more or less regular fall in purity right from the beginning from 92.7% when harvested to 70.8% after 16 days.

The burnt cane left standing showed no appreciable fall in purity over the first nine days, and thereafter showed an average fall of about 0.8% per day over a further 17 days.

Conclusions.

The general results show that the changes in cane after harvesting leading to diminution in weight and sucrose content and purity are delayed by burning the cane before cutting for seven to nine days under the conditions of this experiment, but thereafter appear to set in at an accelerated rate.

Cane left standing after burning with moderate intensity does not suffer any deterioration in purity or sucrose content or Java ratio for nine days under the conditions of this experiment, but thereafter shows a slow gradual diminution in sucrose content and purity, probably associated with the renewed growth in the cane.

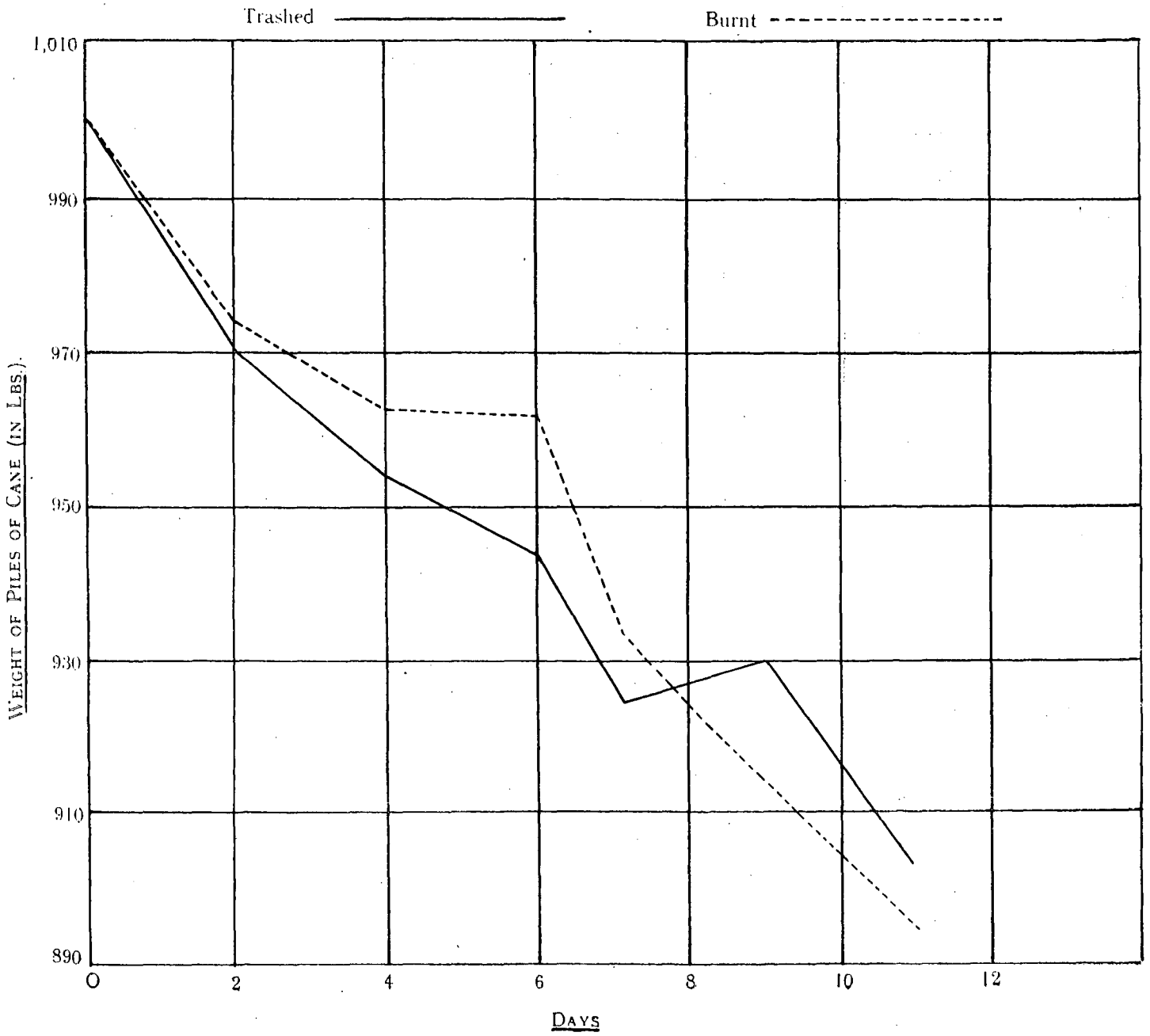
Whatever may be said of the agronomic aspects of burning cane before harvesting (and there are many weighty objections to it), there is no doubt that in these experiments it did not appreciably affect the quality of the cane as indicated by sucrose content and purity and Java ratio for the first four days after harvesting, but, on the contrary, tended to improve the keeping qualities of the cane as compared with unburnt cane over the first ten days after harvesting.

In the case of trashed cane, it is evident that deterioration sets in at a uniform rate from the time of harvesting, and that therefore it is necessary to get such cane to the mill with the least possible delay.

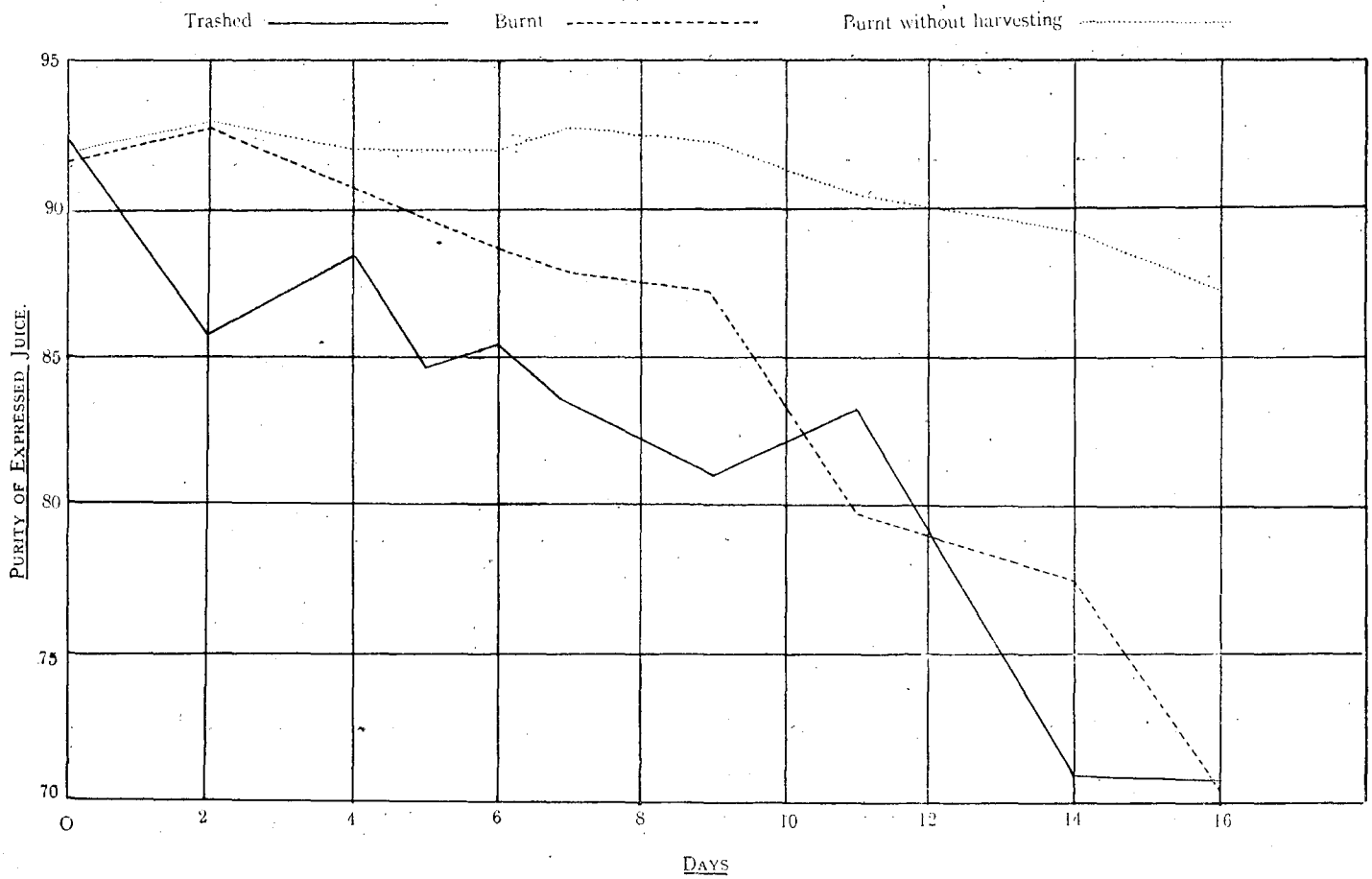
Unfortunately, it was not possible at the time to investigate the further milling qualities of the cane in these experiments by determination of hydrogen ion concentration, glucose ratio, content of colloids, and the like. It is, however, hoped to return to this subject at an early opportunity and carry out more comprehensive analytical tests.

The authors desire to express their acknowledgments to Messrs. Natal Estates, Ltd., for their interest and assistance and valuable suggestions in the course of these experiments; also to Mr. Donald McRae of the Experiment Station staff for his valuable assistance; and to the South African Cane Growers' Association for the loan of the services of two of their cane-testers (Messrs. Dixon and Nicholson), without which it would have been impossible to carry out the detailed sampling and analysis in this and other field experiments of the past season.

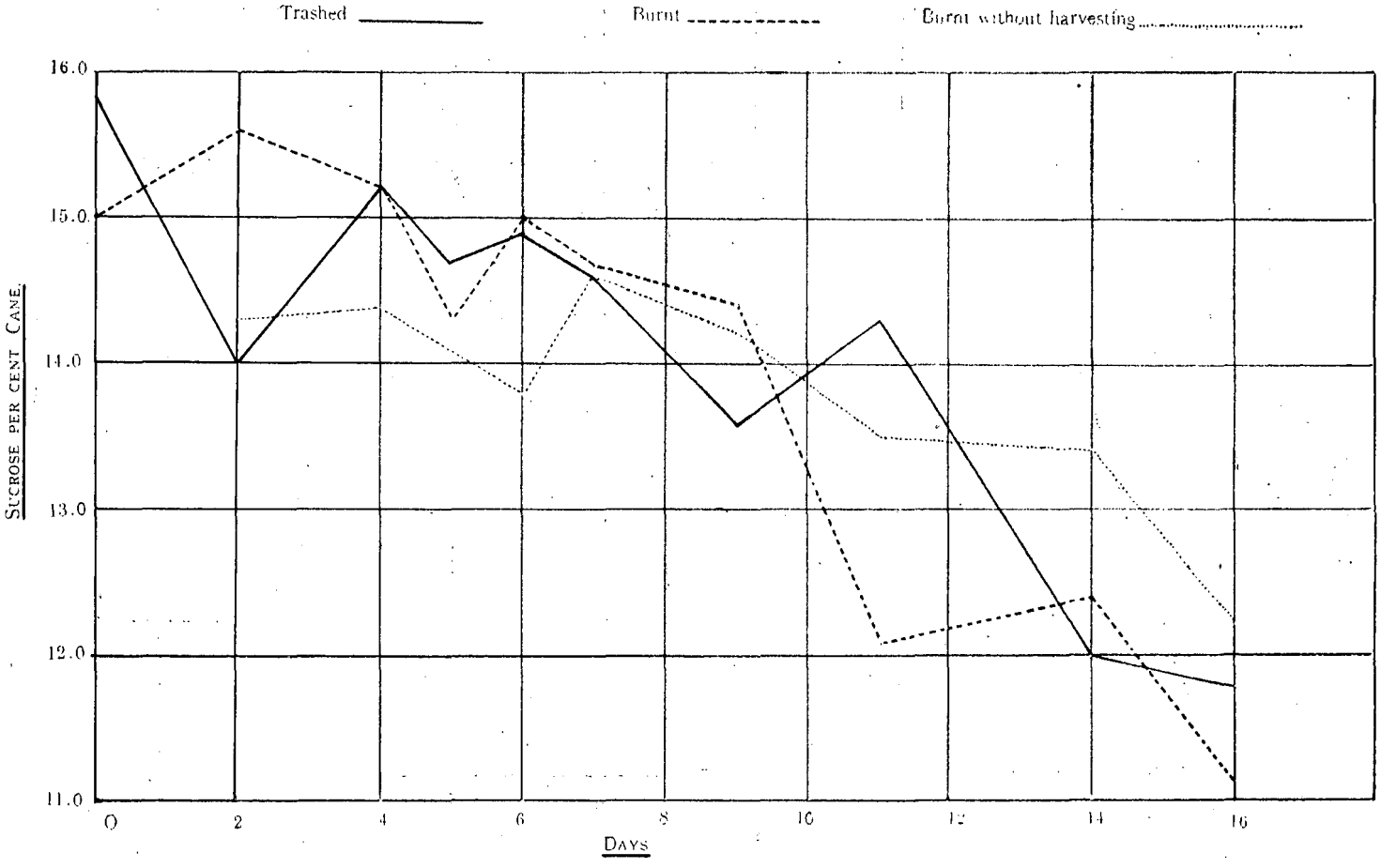
LOSS OF WEIGHT OF TRASHED CANE COMPARED WITH BURNT CANE.



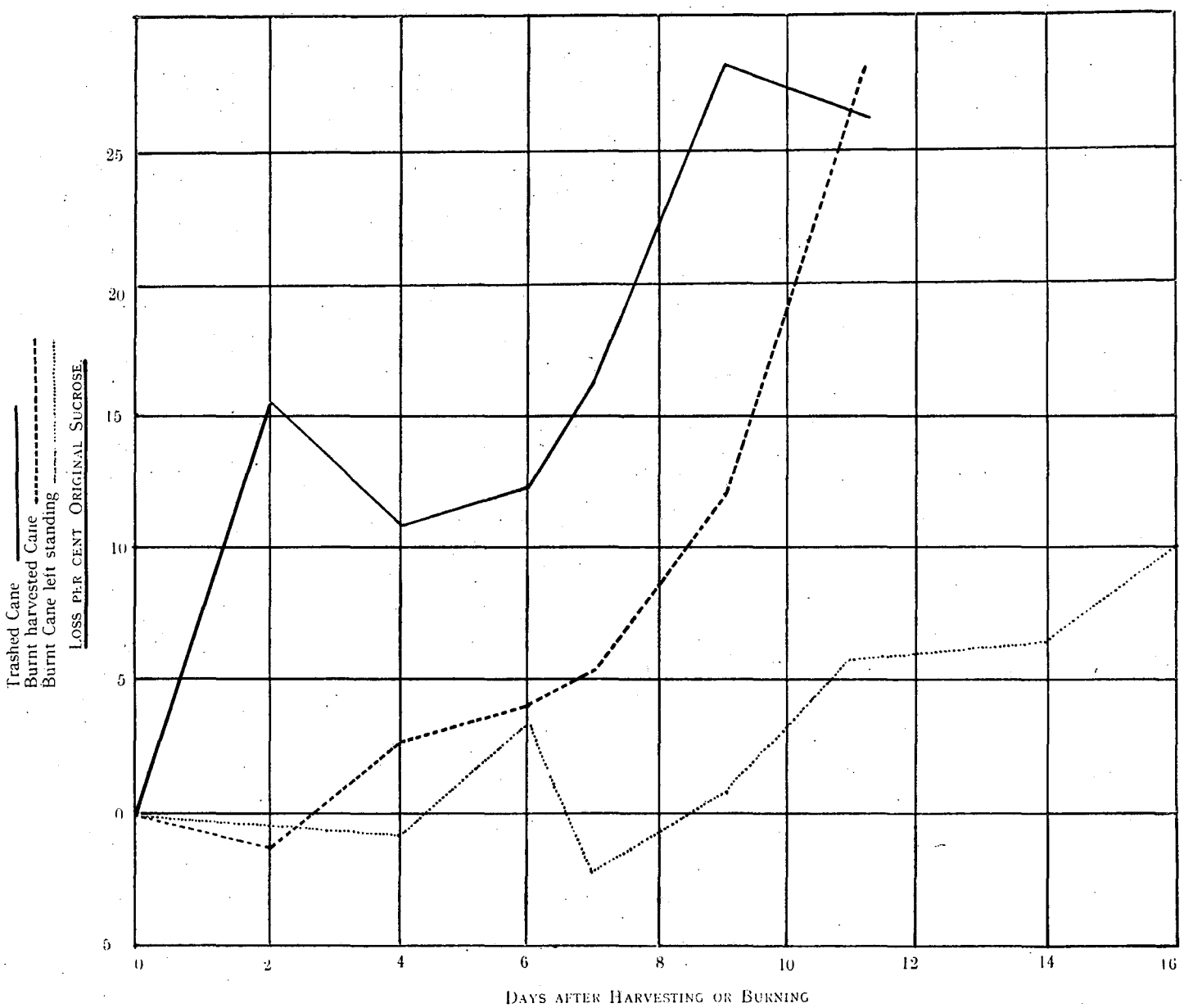
PURITY OF EXPRESSED JUICE FROM TRASHED CANE COMPARED WITH BURNT CANE.



SUCROSE CONTENT OF TRASHED CANE COMPARED WITH BURNT CANE.



PERCENTAGE LOSS OF ORIGINAL SUCROSE IN CANE



Mr. Bechard: While conducting experiments on wet and dry cane, I had the opportunity of discriminating between burnt and trashed cane, and later on, when I was doing some tests the procedure I followed was to sub-sample the cane into two portions—one was burned and one was trashed. The method I was using for burning the cane was to stand the cane upright, pack it loosely with trash and then burn it. Before burning the cane I weighed it, and I weighed it also afterwards, and found no measureable difference in weight between the cane before it was burned and after. I also found that the difference in the loss of weight by evaporation between burnt and trashed cane was very small. While I was doing the experiments I found the trashed cane certainly did lose quality very much quicker than the burnt cane.

Chairman: In other words, your experiments confirmed our own?

Mr. Bechard: Yes.

Mr. Dymond: With regard to cane burnt and left standing, you show an increase of sucrose content 14.3 to 14.6%. Did you notice any difference in the Brix of the juice after burning and leaving to stand? Did it decrease?

Chairman: The analyses are given in Table No. 3, and show that the density remained constant over the first four days, during which no loss of sucrose was shown.

Mr. Dymond: There is another point. All our experiments show that in burnt cane the sucrose rises. Are we absolutely sure that that is sucrose? Although in 1924 I did a few gum experiments I found no appreciable increase in gum, but no work has as yet been done to determine the dextro-rotatory power of such gums, especially after burning. I think that is a point that might be emphasised for future experiments.

Chairman: My present impression is that the apparent gain in sucrose in burnt cane left standing is that the cane is drying out and losing moisture by evaporation. When you take that into account, as we have recorded on the last page, you see the curves show a gradual loss in sucrose. Allowing for loss in weight, you will see the preliminary gain in sucrose in the two lots of burnt cane is very small—so small that it comes within the limits of experimental error. That, to my mind, indicates that the sucrose has remained normal. That, of course, does not preclude the possibility of other dextro-rotatory substances occurring, as you suggest.

Mr. Pearce: At Illovo we have had a good experience of fires. We have certain cane there—Agaul cane—and the purity of that cane after about the eleventh day was 95% and glucose 17½%. So that shows it was not sucrose.

Mr. Dymond: Was that young cane?

Mr. Pearce: I think that cane was about 12 to 15 months old. I would like to mention an article I have read in the last proceedings of the Hawaiian Technologists' Association, as to the effect of trash on cane. On 200,000 tons of cane with 13% fibre, they reckoned the loss was 40,000 dollars, due to trash.

Mr. McRae: In our Cane Burning Committee the figures to which Mr. Pearce is referring were brought up. The author was working on cane of 12% fibre, and he found with 8% trash the sucrose going to the boiling-house was increased by 20%. Those are the figures that I can recollect, which gives one an idea of the effect the trash would have. Of course, the great thing is that the trash has about 50% fibre.

Mr. Booth: In handling a considerable amount of burnt cane over long distances, I have also made experiments in years past, but I am forced to the conclusion that the deterioration of cane depends on various factors which apparently you have not taken into consideration. Firstly, I think deterioration depends very considerably on what sort of soil that cane has been growing in; secondly, on what is the ripening point of that cane. I have worked with a brix of 20% and over; if you compare the rate of deterioration with a brix of 20 as compared with a brix of 17 or 18%, I think you will find the ratio is different. I think the climatic conditions have a tremendously big effect. I had occasion to reject cane after 36 hours' burning and in the interval between burning and cutting a thunderstorm came along, which apparently started a rapid rate of deterioration. I think in any future experiments the point should be borne in mind that the brix of the juice has a vital effect on the rate of deterioration.

Mr. Dymond: Another factor which influences the keeping of burnt cane is the intensity of the fire. It is, in fact, one of the principal factors which affects its keeping qualities. I agree that mature cane keeps very much better than young cane, but even there the intensity of the fire plays one of the biggest parts.

Chairman: We admit, of course, that we have merely touched the fringe of the subject, and we were careful to state in our conclusions that they only apply to the conditions of the experiments. Those conditions as regards the character of the soil and maturity of the cane, and so forth, have been recorded, also the intensity of burning. We quite realise that very much more work requires to be done under varying conditions to find out whether the same conclusions would be found.

Mr. Booth: I think there is an error on page 7. You say fibre % cane is 19.2, and by leaving the cane standing at the fourth day you have it down to 15.9%

Chairman: I think probably that this is rather a wide experimental error. We just took the samples of cane as we found them and Mr. Booth has had a good deal of experience in the variation of cane samples.

It has always been a matter of some surprise to me that the factories do not appear to have any decided objection to milling burnt cane. In Cuba, at a factory where I was in 1923, cane was never burnt purposely, but occasionally it was maliciously or accidentally burnt and was believed always to lead to trouble in clarification in the mill. That was not Uba cane, but Crystalina cane, and we used to find that specks of carbon from the burning would get right through the whole process and it was very difficult, for example, to get a sample of sugar for the laboratory that you could read with distinctness in the saccharimeter, because of the minute particles of carbon which seemed to permeate everything. Apparently conditions such as that are not found in burning cane in this country.

Mr. Bechard: Where white sugar is made, there is a tendency among the chemist staff to notice that this carbon is brought right through. It has been observed especially on the South Coast. At Esperanza when I was there some years ago we did not like burnt cane at all for a similar reason.

Chairman : This factory I was speaking of was making raw sugar exclusively. I never heard the remarks of the refineries in the U.S.A. on the refining qualities of the sugar that was sent to them at at that time.

Mr. Bijoux : The greatest difficulty with burnt cane is, encountered at the Filter-Presses, I believe.

Mr. Booth : In connection with pests, I notice on page 4, of the paper of the Sub-Committee on Cane Burning, it says "Some authorities state that this advantage is not as great as it would seem, for burning is likely to destroy the parasites of insect pests as well." Who are these authorities?

Chairman : I can tell you some of them from my own experience in Louisiana. After the damage from the sugar cane moth borer became very acute, it was found that burning the trash after harvesting helped to destroy the larvae and eggs of the insects, and for that reason the Experiment Station officially recommended for a time that all planters should burn their trash in the fields after harvesting. But it was found that in nearly every case where that was done, the infestation of borer was far heavier than before, and when the matter was further studied, it was found that this was due to the destruction of certain minute parasites that were destroyed in relatively greater numbers than the pests themselves ; as a result of this, the Experiment Station rescinded their first recommendation and afterwards advised planters not to burn trash. I don't know if that instance is one the committe had in mind.

Mr. McRae : I am sorry I cannot give the actual reference to this at the moment, but I can look it up and let Mr. Booth have it. Regarding the control of insect pests by parasites, probably everyone knows that that is the only control now employed in Hawaii, the introduction of parasites, and it is an important factor.

Mr. Booth : I know Noel Deerr goes into this question. But I am really thinking of the pest that has four feet—the cane rat—and I think they play a greater part than those pests you mention here. I know for an absolute fact that in some areas in Zululand, unless cane burning is adhered to, there will be no cane at all. The cane rat problem is very serious there. I think that matter should be brought into account in the general survey of the position.

Mr. Bechard : The cane rat also has its parasites in the way of snakes, and the snakes would be destroyed too, in the case of burning.

Chairman : There is no doubt in this country we have a great number of pests which are more or less unknown or not taken into account in other countries of the world. When I first came here I went to Umfolosi and found quite a lot of serious damage had been done by hippopotami (laughter).

Mr. Moberly : I don't know what Mr. Booth's experience was in the last floods at Umfolosi, but I know that after the first floods at Umfolosi, when the floods destroyed all the snakes, they had the biggest infestation of rats they had for many years.

Mr. Pearce : In spite of all the parasites in Hawaii, the majority of the places there burn the cane before harvesting. I would like to know if anyone has had experience in filter press work of the difference between burnt and unburnt cane. I know at Illovo, the burnt is much easier to handle than the trashed cane.

Mr. Bechard : On the question of filter press work as a matter of personal observation, I can say that a little while ago there were extensive fires at Esperanza, and when we received this burnt cane the filter press seemed to give less trouble.

Mr. Pearce : The question of high purity in cane is an important subject. Supposing we have a fire, and a planter comes along with 95% purity, and you know it has no sucrose in the cane. What are you going to do with it?

Chairman : In a matter such as that, if those conditions became at all general we would have to take into account the glucose ratio as well as the purity in some way

Mr. Moberly : In connection with that, it is quite possible for the purity to differ on the other side as well and to get a purity in the crushed juice apparently too low. In the case of wet cane you get an increase in the purity of the crusher juice which is not reflected in the mixed juice, and in that case, at the present moment the planter has to bear the brunt of it. If an adjustment is made, it would have to be made on all sides.

Chairman : There are some very interesting remarks on page 4 of the report, dealing with cultivation of ratoons and so on. There is a point that has often occurred to me lately with regard to the ploughing in of trash. It has been found in the case of other crops that the ploughing in of straw has for a time an unfavourable effect on succeeding crops, owing apparently, to two factors, according to experiments carried out at the New York Agricultural Experiment Station. They found that ploughing in straw from a cereal resulted in a diminution of available nitrate in the soil ; apparently the bacteria concerned in the decomposition of the straw, were drawing for their own use on the stores of nitrate, resulting in a temporary deficiency which was harmful for any crop growing immediately after it. Further, there was evidence of some toxic by-product of decomposition also having a prejudicial effect. This has been recorded by several different observers, and while I have never seen any account published of any injurious effect on cane by the ploughing in of trash, it would be interesting to know whether it ever occurs.

Mr. Bechard : I was farming in cotton just previous to the 1925 flood, and in some fields there was a heavy growth of grass ploughed in ; there was a poisoning of the cotton crop where the grass had been ploughed in. Where it had been burnt before the flood there was no evidence of toxic poisoning. Some fields were ploughed in with a heavy growth of grass and others were ploughed in before the grass grew. There was a large decrease in crop in some of those fields. On the question of cost of ploughing in trash in the cane fields, I had some figures on the cost of ploughing in ; in Queensland, it runs into well over £2 per acre.

Mr. Booth : I would like to ask about the analysis of burnt cane left standing, on page 7. You show practically the same figures on the fourth day. Had any work been done or could it be done, to show the decomposition in the cane after being cut four days after standing? Would the decomposition be at the same rate as shown in the table? In common cane burning practice, it is usual to have cane standing four days, and it may take another 48 hours at the mill, and you arrive at some idea of the loss, if you could get cane under the same conditions as in the field.

Chairman : So far as these figures show, they appear to indicate that cane once burnt should not be harvested until it is possible to send it up to the mill. In other words it keeps much better standing, than it does harvested, but it certainly would be interesting to have tests of the keeping qualities of cane which has been allowed to stand before harvesting. I was looking forward to see the results of rain during part of these experiments, but as it happened, there was scarcely any rain worth mentioning.