

THE EXAMINATION OF THE CRITICAL PERIOD OF GROWTH OF A SPROUTING CANE SETT WHEN WEED COMPETITION MUST BE ELIMINATED

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Summary

In a paper presented to a previous Congress on the problem of weeds in a crop of plant cane it was concluded that the removal of weeds in the cane row must be effected at a period of growth which would be measured as from 20 to 30 days from planting, moist, good growing conditions prevailing. This present paper deals with the subject in more detail and gives more recent experimental evidence.

To examine in greater detail the behaviour of the cane sett and the effect the presence of weeds exerted on the growing shoot, a series of setts were lifted at varying periods after planting, examined and photographed.

As weeding at 7 and 14 days had no more material effect on the yield of cane, the first setts were lifted at 20 days and a length of cane row was weeded at this date. The first series of setts to be lifted were from this area and were lifted at intervals of 10 days thereafter.

The sett lifted at 20 days and unweeded for those 20 days had a well developed primary shoot, with the lower leaves bending over, the sett roots were well formed and shoot roots appeared to be vigorous but small. Photograph 1 shows the state of growth.

In this same series the setts lifted at 30 days, 10 days after weeding, were showing a bulbing of the primary shoot at the base, the shoot roots had elongated considerably and the sett roots appeared to have stopped growth. Photograph 2 shows this stage of growth.

Still in series one, the setts lifted at 40 days, 20 days after weeding, had the first appearance of the secondary buds shooting, the shoot's roots spreading well out into the surrounding soil and the sett roots very much as previously. Photograph 3 shows this development.

Further liftings in series 1 were carried out at 50 and 60 days from planting having been weeded for 30 and 40 days respectively. The secondary shoot development continued and difficulty was experienced in lifting the widely spread shoot roots. By 60 days from planting a stool had been formed with a mass of roots and shoots in an advanced stage of development. Photographs 4 and 5 show these stages of development. This completes the first series of liftings from a line of cane weeded 20 days after planting.

Series 2 starts with a sett being lifted after 30 days where the weeds had not been removed since planting.

This sett had the same appearance as the first lifted in series 1. The primary shoot was well developed, slightly longer than the first lifting in series 1. The shoot roots were still small and the sett roots had developed forks. Photograph 6 refers to this stage.

The second lifting in series 2, 10 days after weeding and 40 days after planting showed the bulbing of the base of the primary shoot and a considerable development of shoot and sett roots. Photograph 7 depicts this stage.

When series 2 was lifted at 50 days after planting, and 30 days of weed-free growth, the secondary shoots were well developed as were the shoot roots. Photograph 8 shows the well developed secondary shoots.

In the next series, number 3, the cane row was left unweeded for 40 days and then setts were lifted at 10 day intervals.

The first lifted sett at 40 days from an unweeded line of cane emerged with the primary shoot, sett roots and shoot roots in much the same condition as at the first lifting of series 1. The 20 days of extra life which had been spent in the presence of weeds had not allowed any marked improvement in the stage of development of the sett and primary shoots. Photograph 9 shows how little growth has occurred.

The subsequent liftings at 10 day intervals in this third series show similar development in the growth of the cane as was noted in series 1 and 2. Photographs 10 and 11 can be compared favourably with similar photographs in other series.

Series 5 lifted after 50 days of growth amongst weeds follows a similar pattern.

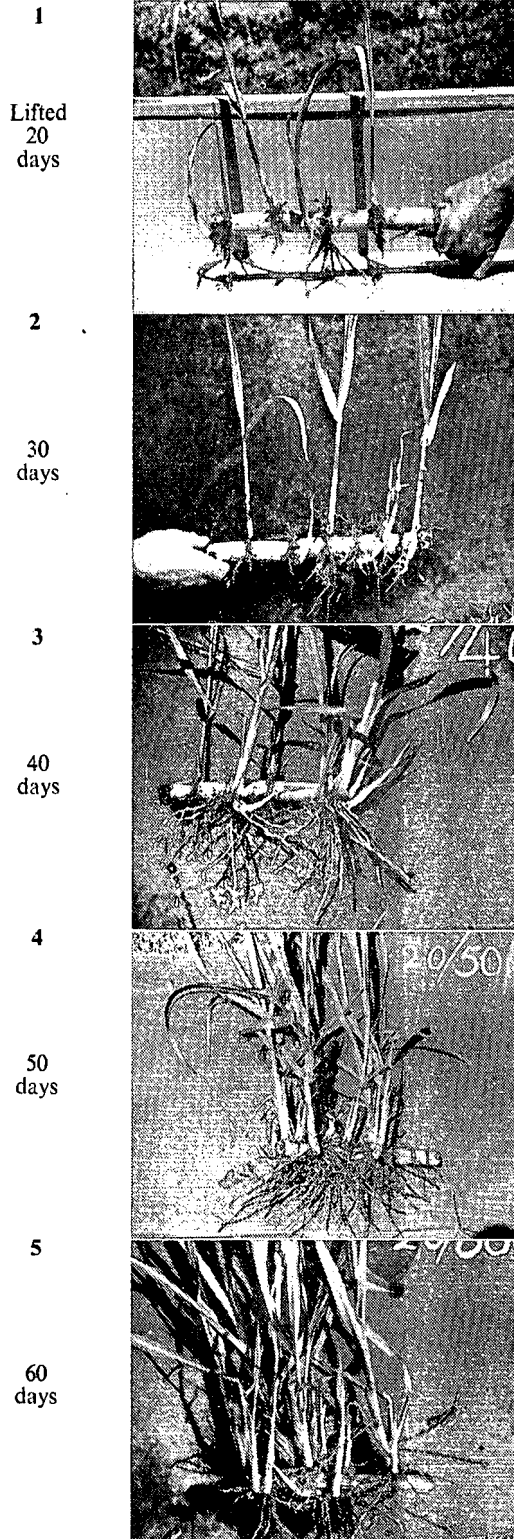
The first lifting has a very much elongated primary shoot, but shoot roots are almost absent and sett root predominate. The Photograph 12 is typical of a sett lifted from an unweeded line of cane.

Ten days later now familiar bulbing of the shoot base is noted and the young white shoot roots are emerging. Photograph 13 can be referred to.

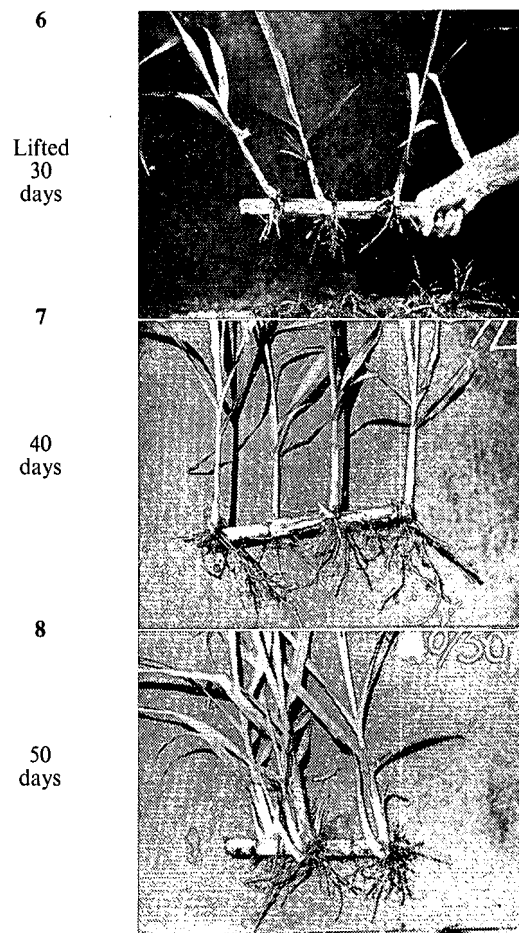
Finally series 6 one sett was lifted from a line of cane unweeded for 60 days. Although the primary shoot is long, what root development there is mainly sett roots matted together with few shoot roots showing. The development of this sett lifted 40 days after the first setts were lifted in series 1 has not developed in any way except for the primary shoot lengthening considerably. Photograph 14 shows a sett and should be compared with other setts lifted

LIFTED CANE SETTS AFTER VARIOUS PERIODS BETWEEN PLANTING AND WEEDING

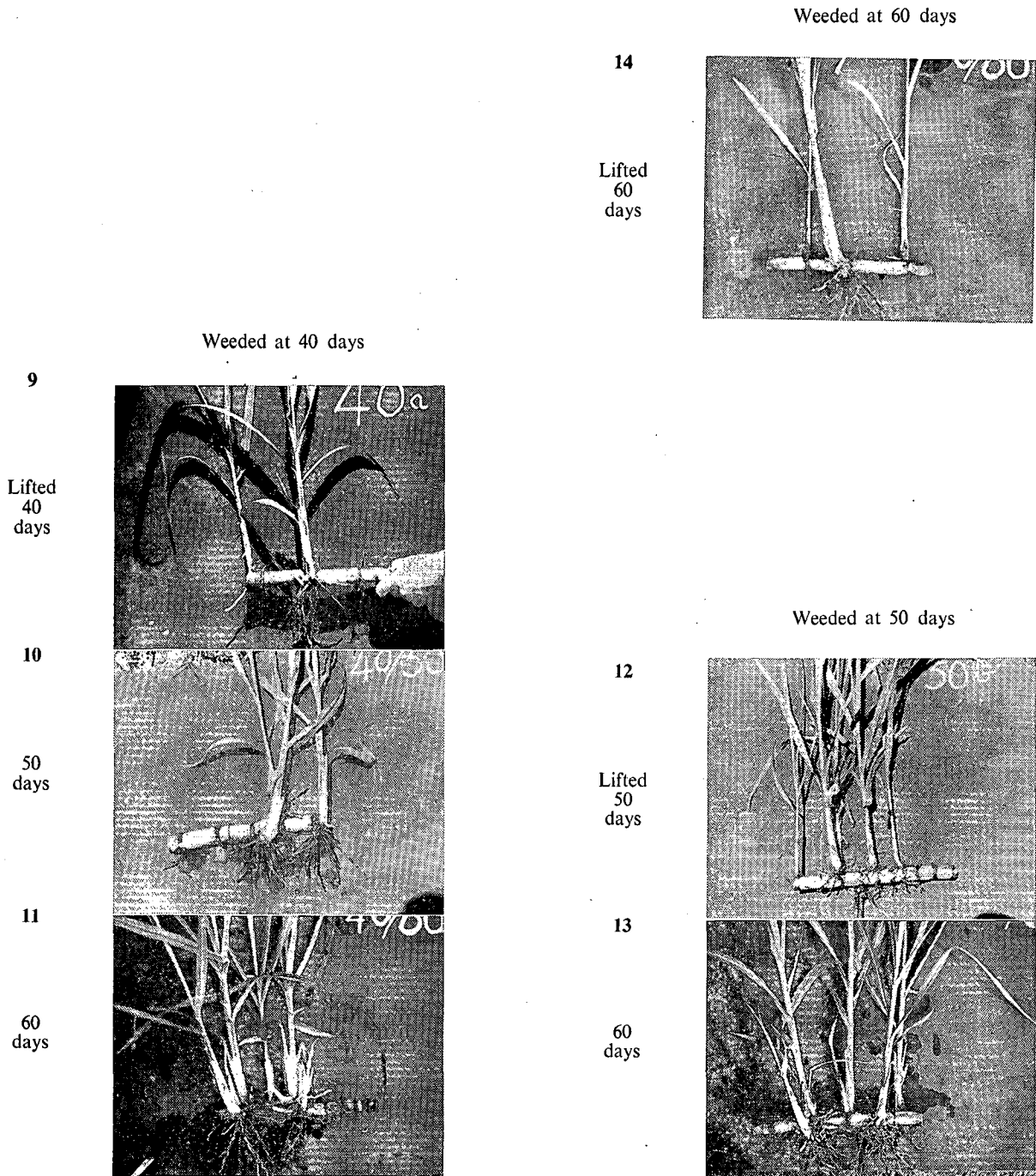
Weeded at 20 days



Weeded at 30 days



LIFTED CANE SETTS AFTER VARIOUS PERIODS BETWEEN PLANTING AND WEEDING



from a line of cane which has not been weeded, namely photographs 1, 6, 9 and 12.

The comparative development of the same aged cane, at 60 days from planting should be made when weeding took place at 20 days and again at 60 days, photographs 5 and 14. It would appear from the above

studies that the time weeds should be removed from the line of cane is when the lower leaves of the primary shoot begin to bend over and wave about. This stage is first seen in Photograph 1 of a sett lifted 20 days after planting. Weeding carried out at this stage will allow the cane plant to develop rapidly in the next 40 days.

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