

Study of the feeding value of *Salvinia auriculata* for growing pigs

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INTRODUCTION

Salvinia auriculata which is floating water weed, reported to have been introduced into Ceylon from India, was used extensively during the Second World War as a camouflage for waterways and lakes. Since its introduction, this weed has spread so rapidly that it has become a pest, taking possession of waterways and paddy fields and clogging up irrigation channels. It has also been implicated in the spread of Filariasis in Ceylon. Although a programme for eradication of *Salvinia* has been existence for some years, this water weed still causes considerable economic damage.

This paper records the results of a study to assess the feeding value of *Salvinia auriculata* for growing pigs. The study was undertaken following a suggestion that *Salvinia* may be of value as a pig feed. There is no record in the literature on the use of *Salvinia* as an animal feed. Some work has, however, been reported on the feeding value of a similar water weed, namely, Water Hyacinth (*Eichornia crassipes*). Water Hyacinth is reported as being a bulky and unpalatable feed, both in the fresh and cooked forms. It is not considered practical to include Water Hyacinth in rations of pigs (Minano, 1938) and in rations of cattle (Chatterjee and Abdul Hye, 1938). More recently, Wahid (1959) has reported the incidence of diarrhoea in cattle, when Water Hyacinth was fed alone.

MATERIALS AND METHODS

A feeding trial was carried out using 3 month old Crossbred (Large White x Large Black) pigs at the Government Livestock Farm, Welisara. Twenty pigs were paired according to the initial weights and treatments allocated at random for each pair. Both groups received a basal concentrate feed made up as follows:—extracted coconut meal 33 per cent., groundnut meal 4 per cent., rice bran

(grade I) 30 per cent., maize 20 per cent., wheat flour 5 per cent., fish meal 5 per cent. and mineral mixture 3 per cent. The quantity of concentrate fed daily was worked out each week on the basis of the weight of pigs in each group. This ration was intended to provide only 75 per cent. of the daily requirement for maintenance and growth. The restriction of the concentrate intake was imposed in order to (1) induce the pigs to consume a reasonable amount of *Salvinia* and (2) accentuate the differences in the growth response under the two treatments. Group 1 was offered fresh *Salvinia* while Group 2 received freshly cut *Brachiaria brizantha* grass on an ad. lib. basis and served as the control group. The amounts of grass and *Salvinia* offered and rejected were recorded daily. The pigs were weighed at the beginning and thereafter at weekly intervals for the duration of the trial. The experiment lasted ten weeks.

Samples of *B. brizantha* and *Salvinia* were analysed for crude protein, ether extract, crude fibre, ash and N.F.E. by the conventional methods.

RESULTS AND DISCUSSION

The composition of *B. brizantha* and *Salvinia* used in the experiment are given in Table 1. It became apparent that feeding of *Salvinia* in the fresh form would not be the most satisfactory form for feeding, since it contained 95.15 per cent. moisture. However, since pigs would not consume *Salvinia* in the dried form, there was no alternative but to feed fresh *Salvinia*.

TABLE 1—Composition of *B. brizantha* and *Salvinia*
(as percentages of fresh weight)

		Dry Matter		Crude Protein		Ether Extract		Crude Fibre		Ash		N.F.E.
<i>B. brizantha</i>	..	22.76	..	1.77	..	0.60	..	7.69	..	1.50	..	11.20
<i>Salvinia</i>	..	4.85	..	0.49	..	0.01	..	1.60	..	0.90	..	1.85

The results of the experiment are given in Table 2 and the growth response of pigs on the two treatments is shown in Fig. 1. At the conclusion of the experiment, pigs on *Salvinia* showed an average

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gain in weight of 12.5 lbs. while those on B. Brizantha grass gained 23.1 lbs. The difference in the final weights of pigs in the two groups was highly significant ($P < 0.001$).

TABLE 2

		Group 1	Group 2
Initial weight (lbs.)	..	26.7	26.7
Final weight (lbs.)	..	39.2	49.8
Gain in weight (lbs.)	..	12.5	23.1
Daily intake of Salvinia (lbs.)	..	1.68	—
Daily intake of B. brizantha (lbs.)	..	—	2.33

The poor performance of pigs in Group 1 was mainly due to the bulkiness of the Salvinia. The excessive moisture content of Salvinia resulted in a very low dry matter intake. It was also observed that Salvinia was relatively unpalatable. This is evident from the lower intake of Salvinia as compared with B. brizantha. The intake of fresh Salvinia showed a progressive decline throughout the experimental period. The average daily intake of Salvinia was 1.68 lbs. per pig while that of B. brizantha grass was 2.33 lbs. Thus the daily dry matter intake was 0.08 lb. for Group 1 and 0.5 lb. for Group 2. There was no evidence of diarrhoea as has been reported with the feeding of Water Hyacinth to cattle (Wahid, 1959). It is concluded that Salvinia in the fresh state is of no practical value for feeding of pigs.

SUMMARY

The results of an investigation on the feeding value of *Salvinia auriculata* for growing pigs is recorded. Pigs on Salvinia performed very poorly compared to those fed *Brachiaria brizantha* as part of the daily ration. The authors conclude that Salvinia in the fresh state is bulky and unpalatable and is therefore of no practical value for feeding of pigs.

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Fig. I - GROWTH RESPONSE OF PIGS
ON SALVINIA AND BRACHMIA

