Agri. Res. J. Kerala, 1978, 16 (2)

ESTIMATION OF LEAF AREA IN PINEAPPLE

The leaf area is of prime importance in plant science. In most cases the calculation of leaf area is cumbersome due to varied size and shape of leaves. Jain and Misra (1956) developed leaf product method to determine leaf area. In lanceolate leaves, the area could be measured by multiplying the length and width with constant (Carieton and Foote 1965). The present study was undertaken to ascertain the applicability of this method in estimating the area of leaves in pineapple.

Study was undertaken using crowns, suckers and mature plants raised from crowns and suckers of Kew variety and twenty-one other varieties of pineapple. Twenty-five leaves from each of the above materials were collected and the actual leaf area was determined by tracing on graph paper and counting squares. Length and breadth of the same leaves were aiso measured. The actual leaf area was then divided by the product of length and breadth to find out the constant.

The range of length, breadth and actual leaf area and the constant determined for each are given in Table 1. The mean of the constant obtained was 0.725 with a standard deviation of ± 0.006. The comparison of the average of actual and calculated leaf area had given the the non-significant Y value 0.057 for 24 df. The highly significant relationship confirmed that the; constant 0.725 could be used to the determine the leaf area in pineapple plants using the formula. Leaf area = length of leaf x breadth of leaf x 0.725.

സംഗ്രഹം

ഇലയുടെ വിസ്തീർണ്ണം കണ്ടുപിടിക്കുവാൻ ഉതകുന്ന സ്ഥിരമായമൂല്യം കണ്ടുപിടിക്കുക എന്ന ഉദ്ദേശത്തോടെ തല, മുകുടം എന്നിവ ഉൾക്കൊള്ളിച്ചുകൊണ്ട് 22 ഇനം പൈനാപ്പിളിൽ പഠനം നടത്തിയതിൽനിന്നും സ്ഥിരമായമൂല്യം 0.725 എന്ന് കണ്ടുപിടിക്കപ്പെട്ടു. ഇലയുടെ വിസ്തീർണ്ണം കാണുവാൻ ഇലയുടെ rolgo, വീതി, സ്ഥിരമായ മൂല്യമായ 0.725 എന്നിവ ഗുണിച്ചാൽ മതിയാകുന്നതാണ്.

REFERENCES

Carieton A. E. and Foote, W. H. (1965) A comparison of method of estimating total leaf area in barley plants. *Crop Sci.* **5**: 602—3.

Jain T. C. and Misra T. K. (1966). Method of estimating leaf area in crop plants. *Indian J Agron* **11**, 280—83.

Banana and Pineapple,
Research Station,
Kannara, Trichur.

S. BALAKRISHNAN
P. SUKUMARAN NAIR
K. K. R. NAIR and
I. P. S. NAMBIAR

(*M. S. Received 8-11-1977*)

tillers in the soil application as the entire dose was given within a period of 30 days after planting. Panicle length being a varietal character was not influenced by a change in the method of application of nitrogen (Nair, 1962).

Table 1

Effect foliar and soil application of urea on growth characters, yield attributes and yield of paddy

Treatments	Height at harvest (cm)	Percentage of productive tillers	Grain per panicle	1000 grain weight	Grain yield kg/ha	Straw yield kg/ha
1. 10 kg N/ha (Foliar)	117.8	86.3	113.7	19.18	2110	2580
2. 15 kg N/ha ,,	117.6	85.!	113.8	19.19	2150	2605
3. 20 kg N/ha ,,	118.8	84.5	11.45	19.62	2278	2733
4. 25 kg N/ha ,,	119.9	81.6	116.0	19,32	2421	2921
5. 30 kg N/ha ,,	120.6	81.1	117.1	20.54	2584	3079
6. 30 kg N/ha (soil)	121.4	74.0	117.7	20.31	2471	3232
F—Test	N. S	Sig.	Sig.	N. S	Sig.	Sig.
C.D (0.05)	—	2.86	3.30	—	320-1	352.5

In the case of grains per panicle, the treatment 30 kg nitrogen applied to soil was on par with 20, 25 and 30 kg nitrogen applied to foliage. This may probably be due to the rapid and complete absorption of nitrogen given to foliage *as* reported by Fisher and Walker (1950). Thousand grain weight was not influenced by the various treatments significantly, though there was slight trend in favour of increasing the weight at higher levels of foliage feeding.

The foliar application of nitrogen has resulted in a progressive increase in the yield of grain. The maximum yield of 2584 kg/ha. was recorded by 30 kg nitrogen to foliage. The fact that the response for 20, 25, 30 kg nitrogn to foliage were no par with 30 kg nitrogen to soil indicates clearly that foliar application of 20 kg nitrogen is almost as effective as that of 30 kg nitrogen to soil. The maximum straw yield of 3232 kg/ha was recorded by 30 kg nitrogen to soil. This may be due to the fact that in this treatment the soil received all the nitrogen before 30th day after planting and this nitrogen would have helped to enhance the vegetative growth rather than productive characters. The observation of Sahu and Lenka (1966) that foliar application generally slackens vegetative growth justifies the superiority of soil application of nitrogen in this regard.