https://doi.org/10.29321/MAJ.10.A03853

Studies on grasses with special reference to their fodder production potential on contour bunds *

by

S. MADHAVA RAO [1] and K. P. RAMASWAMY [2]

Synopsis: The findings of a study carried out at the Agricultural Research Station, Bhavanisagar on the fodder value of grasses raised on contour bunds are reported in this article. In addition to assuring economic return for the farmer, the growing of grasses on contours acts as a protection for the bunds.

Introduction: The importance of grasses as a perennial protective cover against erosion is well known. Mechanical structures such as contour bunds raised against sheet erosion in the plains and built at great cost, are the main structures that require to be protected from the erosive action of the rains by provision of a cover of grass, so that they may prove of lasting utility. The species of grasses to be grown on these structures have to be selected after extensive trials. Factors that are to be taken into account while selecting the species are their binding capacity, capacity to produce and maintain a complete cover throughout the year and their subsidiary utility in the form of fodder from their foliage which will be an economic benefit to the small land owner.

One main consideration to be taken into account while providing erosion preventing structures such as contour bunds with suitable cover, especially in the case of the small cultivator owning a few acres of dry land, is the loss of cultivable land occupied by the contour bunds themselves, which he can ill afford. This loss will have to be made good through some economic return from the grasses raised on these bunds. The need for a judicious selection of suitable species of grasses to meet the needs as stated above is therefore obvious. The raising of suitable species of grasses is therefore of vital importance, both from the point of view of an economic return, as well as from the point of view of providing a lasting measure of bund maintenance, as stressed by Rama Rao (1962). Work on these lines cited above has been in progress for the last three years at the Agricultural Research Station, Bhavanisagar with a large number of species of grasses. The findings arising from these studies, with particular reference to their fodder value are presented in this paper.

---

[1] Assistant Botanist, soil conservation scheme, Ootacamund, [2] Assistant in Botany, Bhavanisagar.

* Received on 28—12—1964.

Soil and Climatic conditions: The soil in the Agricultural Research Station, Bhavanisagar where the trials were conducted are of the red loamy type with very poor moisture retentivity and organic matter content. The area is also dependant on rainfall. The figures of rainfall for the past decade show an annual precipitation of about 732 mm (slightly above 28") spread over 46 rainy days, the highest rainfall being in the months of October-November. Conditions of drought and poor soil structure present on the region, therefore makes the findings from this study of wide applicability to major dry areas in the state.

Species of grasses: From the data on climatic conditions presented above, it can be realised that species of grasses have to be selected based on their drought resistance and vigour. Among a large number of species tried separately, four species *viz. Cenchrus ciliaris, C. glaucus, Digitaria sp.* and *Panicum antidotale* were found to be promising based on their drought tolerance, vigour and capacity to produce palatable fodder, besides their high soil binding capacity.

The four species listed above were, therefore raised on contour bunds laid in the area, in length of 100' each in three replications. Fodder from these species were cut as and when they became available over a two year period and recorded. The table below shows the yield particulars from the different grasses: *Yield of grasses in kg (*) from 100' of contour bund.*

Date of cutting for fodder	*Cenchrus ciliaris*	*Cenchrus glaucus*	*Digitaria species*	*Panicum antidotale*
I Year:				
20—10—'61	40	54	...	40
6— 1—'62	50	74	60	48
13— 4—'62	40	74	66	54
25— 6—'62	10	28	40	32
29— 9—'62	30	56	40	40
Total for I year	170	286	206	214
II Year:				
29—11—'62	40	78	70	32
6— 2—'63	10	50	36	30
21— 5—'63	6	25	7	13
21— 6—'63	16	32	10	12
16— 9—'63	...	8	...	4
Total for II year	72	193	123	91

Date of cutting for fodder	*Cenchrus ciliaris*	*Cenchrus glaucus*	*Digitaria species*	*Panicum antidotale*
Mean yield for two years from 100' of bund	121	239	164	152
Calculated mean yield for one acre of bund i. e. 435 running feet of bund ** (***)	526	1040	715	663

NOTE: (*) Figures are the mean of three replications

(**) On an average slope of 4 per cent with a vertical interval of 4' between contour bunds, the length of bund in an acre is arrived at by the formula $L = \frac{AS}{100\,D}$ where L - length of bund, S - percentage of slope, D - vertical interval between bunds and A - area in square feet.

(***) Differences in yield between varieties significant at P—0.05 level.

The data presented above indicate that of the four grasses, the species *Cenchrus glaucus* has given the maximum yield of 1040 kg from one acre of bunds in five cuttings per year under the poor soil and rainfall conditions at Bhavanisagar, being significantly superior to other grasses.

Considering the above yield in terms of cattle feed, at the rate of 25 lb of green fodder per head of cattle such as a cow per day, the feed available from an acre of contour bund will meet the green fodder requirement of one cow for 91 days or three months in a year $\frac{(1040 \times 2{\cdot}2.)}{25}$. Thus a cultivator with four acres of dry land can maintain a cow and meet its entire fodder requirement from the grass grown on the contour bunds. In terms of money value, the return to be obtained by a cultivator solely from the contour bund in one acre works out to Rs. 22/- at the rate of 100 lb of green fodder per rupee. This is in addition to the great usefulness of the grass in keeping the contour bunds intact and reducing the cost of maintenance.

Summary: The results of trial plantings of grasses on contour bund with particular reference to their fodder potential carried out at Bhavanisagar, are presented. It is seen that the fodder produced from the grass, *Cenchrus glaucus* from contour bunds in one acre is sufficient to meet the fodder needs of one cow for three months in an year, amounting in cash value to Rs. 22/- per acre to the ryot.

REFERENCE

Rama Rao, M. S. V. 1962 "*Soil Conservation in India*" Indian Council of Agricultural Research, New Delhi.