

## Economics of baby corn cultivation under sole and intercropped situation with leguminous vegetables

D. NATARAJ\*, K.N. KALYANA MURTHY, C.M. SUNIL AND V. MADHUKUMAR

Department of Agronomy, College of Agriculture, University of Agricultural Sciences, G.K.V.K., BENGALURU (KARNATAKA) INDIA (Email : sadhanaanu123@gmail.com)

### ABSTRACT

An experiment was conducted during *Rabi* 2007 on a sandy loam soil at Agriculture College, V.C.Farm, Mandya (Karnataka) to identify the suitable and profitable baby corn based leguminous vegetable inter cropping system. The experiment comprised of 13 treatments consisting of eight inter cropping systems and five sole crops of main and inter crops. The experiment was laid out in Randomized Complete Block Design (RCBD) with three replications. French bean inter cropped with baby corn in 1:1 and 2:2 row proportions produced significantly higher baby corn equivalent yield of 16.67 and 16.97 t ha<sup>-1</sup>, respectively. The net returns (Rs 1,17,320 and Rs 1,18,080 ha<sup>-1</sup>, respectively) and B:C ratio (3.83 and 3.85) were also high with these inter cropping systems.

Natraj, D., Murthy, K.N. Kalyana, Sunil, C.M. and Madhukumar, V. (2011). Economics of baby corn cultivation under sole and intercropped situation with leguminous vegetables. *Internat. J. agric. Sci.*, 7(2): 404-406.

**Key words :** Intercrops, Equivalent yield, Babycorn, Net returns

### INTRODUCTION

Maize (*Zea mays* L.) is the third important food crop next to rice and wheat. It has tremendous yield potential and there is no such cereal that has so much immense potentiality. Hence, maize is popularly called as king of crops and it has been cultivated for grain and fodder purpose. Its importance as vegetable is little known to the Indian farmers in spite of the fact that it fetches very lucrative price in national and international markets. Thailand and china are the world leaders in baby corn production. Baby corn cultivation is now picking up in some states of India (Ramachandrapa *et al.*, 2004).

Productivity of maize is highest in Karnataka and the maize area is increasing under rain-fed conditions. Whenever exclusive fodder maize is grown, baby corn can be a potential alternative owing to its dual use for vegetable and fodder (Sahu, 2003). Depending upon agro-climatic conditions 3 to 4 crops of baby corn can be taken up in a year with good profit. Besides, it produces higher fodder yield per unit area. The increase in production of baby corn is necessary to meet the demand of vegetables for the burgeoning population. Yield maximization per unit area and time is the possible answer to the fulfillment of vegetable requirement.

### MATERIALS AND METHODS

Field experiments were conducted at Agriculture College, V.C. Farm, Mandya (Karnataka) during *Rabi*,

2007 with an objective to identify suitable legume vegetables as inter crops with newly introduced baby corn for vegetable purpose and also to review the increased income to the farmer through intensive cropping and suitable combination of leguminous vegetables to sustain productivity. The experimental site had sandy loam in texture and neutral in reaction (pH 6.73) and nutrient status of low availability nitrogen (199.9 kg ha<sup>-1</sup>), medium in available phosphorus (27.0 kg ha<sup>-1</sup>) and potassium (245.0 kg ha<sup>-1</sup>) with soil organic carbon content of 0.4 %. The total of 13 treatments were laid out in Randomized Complete Block Design and replicated thrice with sole crops of baby corn, vegetables cowpea, cluster bean, French bean and field bean comprising of T<sub>1</sub> to T<sub>5</sub> and the same vegetables introduced in 1:1 and 2:2 row proportions comprising of T<sub>6</sub> to T<sub>13</sub>.

The main crop was baby corn and variety used was Golden baby and the varieties of intercrops were vegetable cowpea; Arka suman, Cluster bean; Pusa Nov-bahar, French bean; Arka komal and Field bean; Hebbal avare. The spacing followed for baby corn was 60 x 30 cm and for 1:1 row intercropping of vegetables the crop was introduced in between the two rows of baby corn and in case of paired rows of intercropping the spacing followed was 90/30 x 30 cm. The fertilizer recommendation was 150:75:40 kg N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O ha<sup>-1</sup>, respectively and it was applied to the base crop of baby corn and nitrogen was applied in split with top dressing at 30 DAS. There was no separate application of fertilizer for intercrops

\* Author for correspondence.

under intercropping system. However, the sole crops where applied the fertilizer as per the recommended package.

## RESULTS AND DISCUSSION

The results of the present study as well as relevant discussion have been presented under the following sub heads:

### Effect on yield:

Baby corn based intercropping systems with vegetable cowpea, cluster bean, French bean and field bean in 1:1 and 2:2 row proportions as compared to sole

cropping of these individual crops have showed no significant differences in terms of yield either husked or dehusked baby corn or green fodder yield. Thus, no adverse impacts of intercrops on main crop yield as an additive series was noticed. However, significant differences existed between treatments for baby corn equivalent yield. Baby corn + French bean in 1:1 and 2:2 row proportions recorded significantly higher baby corn equivalent yield of 16.67 and 16.97 t ha<sup>-1</sup>. This was followed by vegetable cowpea inter cropped with baby corn in 1:1 and 2:2 row proportions both yielding 14.63 t ha<sup>-1</sup>. Similar trend was followed in case of biological yield with T10 and T11 treatments (Baby corn + French bean

**Table 1: Yield and yield parameters of baby corn as influenced by leguminous vegetable intercropping system**

Treatments	Baby corn equivalent yield (t ha <sup>-1</sup> )	Green fodder yield (t ha <sup>-1</sup> )	Biological yield (t ha <sup>-1</sup> )
T <sub>1</sub> – Sole crop of Baby corn	8.54	26.52	35.03
T <sub>2</sub> - Sole crop of Vegetable cow pea	6.83	1.80	8.63
T <sub>3</sub> - Sole crop of Cluster bean	4.21	1.20	5.41
T <sub>4</sub> - Sole crop of French bean	7.87	1.00	8.87
T <sub>5</sub> - Sole crop of Field bean	4.26	2.00	6.26
T <sub>6</sub> – Baby corn + Vegetable cowpea ( 1 : 1 )	14.63	22.42	40.10
T <sub>7</sub> – Baby corn + Vegetable cowpea (2: 2)	14.63	22.77	39.53
T <sub>8</sub> – Baby corn + Clutser bean ( 1 : 1 )	11.30	24.14	35.67
T <sub>9</sub> – Baby corn + Clutser bean ( 2 : 2 )	11.47	25.55	37.07
T <sub>10</sub> – Baby corn + French bean ( 1 : 1 )	16.67	24.75	41.40
T <sub>11</sub> – Baby corn + French bean (2: 2)	16.97	25.19	42.17
T <sub>12</sub> – Baby corn + Field bean (1: 1)	13.90	22.06	38.23
T <sub>13</sub> – Baby corn + Field bean ( 2 : 2 )	14.07	23.12	36.03
S.E.±	0.14	0.86	0.89
C.D. (P=0.05)	0.42	NS	2.67

NS=Non-significant

**Table 2 : Cost of cultivation, gross return and net return and benefit cost ratio of baby corn based leguminous vegetable intercropping system**

Treatments	Cost of cultivation (Rs.ha <sup>-1</sup> )	Gross returns (Rs.ha <sup>-1</sup> )	Net returns (Rs.ha <sup>-1</sup> )	B:C ratio
T <sub>1</sub> – Sole crop of Baby corn	22020	81250	59230	2.68
T <sub>2</sub> - Sole crop of Vegetable cow pea	15000	54710	39710	2.64
T <sub>3</sub> - Sole crop of Cluster bean	15100	25280	10180	0.67
T <sub>4</sub> - Sole crop of French bean	18618	78700	60082	3.22
T <sub>5</sub> - Sole crop of Field bean	15690	51228	35538	2.26
T <sub>6</sub> – Baby corn + Vegetable cowpea ( 1 : 1 )	27090	127960	100870	3.72
T <sub>7</sub> – Baby corn + Vegetable cowpea ( 2 : 2 )	27090	128990	101900	3.76
T <sub>8</sub> – Baby corn + Cluser bean ( 1 : 1 )	27120	102530	75410	2.78
T <sub>9</sub> – Baby corn + Cluser bean ( 2 : 2 )	27120	104670	77550	2.85
T <sub>10</sub> – Baby corn + French bean ( 1 : 1 )	30630	147950	117320	3.83
T <sub>11</sub> – Baby corn + French bean ( 2 : 2 )	30630	148710	118080	3.85
T <sub>12</sub> – Baby corn + Field bean ( 1 : 1 )	27710	122460	94750	3.41
T <sub>13</sub> – Baby corn + Field bean bean ( 2 : 2 )	27710	124470	96760	3.49

1:1 and 2:2 row proportions, respectively). Similar results were reported by Pandita *et al.* (2000).

#### Effect on economics:

The economics of cultivation indicated the highest net returns in baby corn + French bean in 1:1 row proportion ( $T_{10}$ ) with Rs 1,17,320 ha<sup>-1</sup> with the B:C ratio of 3.83 followed by the same crop combination in 2:2 row ratio ( $T_{11}$ ) with net return of Rs 1,18,080 ha<sup>-1</sup> and the B:C ratio of 3.85 compared to their sole crop yields. The net profit of maize intercropped with *Phaseolus vulgaris* (2:2) was higher by 114.5% (Rs 10,711 ha<sup>-1</sup>) than sole maize (Padhi, 2001) and maize + soybean intercropping (Hiremath *et al.*, 1994 and Singh and Singh, 2001).

#### Conclusion:

Thus, the study indicated that the baby corn crop could accommodate vegetable crops as intercrops without deteriorating its yield. French bean inter cropped with baby corn either 1:1 or 2:2 row proportions resulted in realizing

higher baby corn equivalent yield, net returns and B:C ratio compared to other leguminous vegetables inter crops.

#### REFERENCES

- Hiremath, S.M. (1994).** *J. Fmg. Systems*, **10**: 73-75.
- Padhi, A.K. (2001).** *Indian J. Agron.*, **46**: 204-210.
- Pandita, A.K. (2000).** *Indian J. Agron.*, **45**: 48-53.
- Ramachandrappa, B.K. (2004).** *Indian Fmg.*, (Aug, 2004), pp: 3-7.
- Sahu, Panchanan (2003).** M.Sc (Ag.) Thesis, Univ. Agric. Sci., Bangalore, Karnataka (India).
- Singh, V.P. and Singh, V.K. (2001).** *Ann. Agric. Res.*, **22**: 457-461.

---

*Received : March, 2011; Accepted : May, 2011*