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Studies On Onion as Intercrop in Mulberry (*Morus alba*) In Lengare Village Of Sangli District. (M.S.) India.

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ABSTRACT: Sericulture has become a good source or economic enlistment of rural people in view of its fast income-generating nature. In India sericulture is well developed cottage industry and the technologies developed recently have made it possible to practice sericulture intensively with higher profit than from the major agricultural crops. Intercropping with tree mulberry is one of the ways by which productivity and net returns per unit area of land can be increased. The present On-farm testing study was conducted during technologies developed recently have made it possible to practice sericulture intensively with concomitant higher profit than from the major agricultural crops. Intercropping with tree mulberry is one of the ways by which productivity and net returns per unit area of land can be increased. The present On-farm testing study was conducted during during 28 Dec 2018 to 22 March 2019 at Lengare village, of Sangli district. Intercrops under tree mulberry farmer field were randomly selected to compare and study the suitable intercrops under tree mulberry based cropping system Mulberry + Onion bulb The yield of intercrops along with growth parameters viz., Number of branches per plant, number of leaves per tree, Maincrop leaf yield (q/ha), intercrop yield (q/ha), cocoon yield (kg/100 dfls) were recorded.

KEYWORDS: Mulberry tree, onion bulb, silkworm rearing, cocoon yield.

INTRODUCTION: Sericulture is unique in its vast employment and income generating potentialities(Ahsan, et al. 1989) from a mere traditional subsidiary activity, it has now shaped into a remuneration and viable agro industry (Koul et al.1996). India contributes about 20% to the raw silk produced in the world, ranking next only to China (Donald, 1963). India is now technologically more equipped than ever before to attempt for a quantum jump, especially in bivoltine silk production.(Doubetz, and Wells, 1968,) During the last few years, several new technologies have been incorporated in silkworm rearing and many of the old concepts have been changed. (Eswara Prasad, et al. 1991). As a result of which there is stability in cocoon production and crop failure in the field have considerably reduced (Shankar *et al.*1994).

Silk: The name evokes delicate feelings and till date no fabric in the world has conquered this Queen of Textiles. (Weisman, and Merritt 2010). And, that's the magic of Silk. It assures high returns with low investment involving abundantly available family labor.(Kumar,*et al.*1973) It provides employment for four people throughout the year from mulberry plantation of one acre. (Dhote, 1989) In Maharashtra from one acre mulberry plantation a farmer can harvest five-six crops per year.(Shukla,*et al.*1989) This is an effective avocation for rural people and checks the migration to urban areas.

Sericulture in Maharashtra: Maharashtra is a non-traditional for producing mulberry silk and presently 3268 MT in tasar silk (Singh & Katyal, 1966). Maharashtra State Khalid Village Industry Board Mumbai develops mulberry sericulture and Vidharbha Development Vivas Corporation of Vidharbha Ltd. (A Govt. of Maharashtra enterprise) is developing tropical tasar under ISTP programme since 1977-78. Initially, the experiments were carried out for the extension and development of mulberry sericulture at Pachagani & Wai, district, Satara. As a result of it, the farmers were attracted to scientific way of practicing mulberry sericulture under the technical guidance of MSK VIB from 1944-78 to 1996-97 (Singh, et al. 2003). Sericulture industry has been playing a major role in the employment generation and checking migration of rural labor. And no wonder Government of Maharashtra has formed a separate Directorate of Sericulture at Nagpur, under the administrative control of Textile Department on 1st September 1997 it self to ensure its all round development. (Singhvi, et al. 1999). Maharashtra is India's second-largest state in silk production after Karnataka.

MATERIALS AND METHODS:

Study area:

During 28 Dec 2018 to 22 March 2019 field experiments were conducted under irrigated condition at Lengare village, districts sangli. Lengare village is geographical located at in Khanapur tahsil of sangli district in Maharashtra, India. It is situated 13 km away from sub-district headquarters Vita and 69 km away from district head quarter sangli. The total geographical area of village is 4129 hectares. To study the productivity of mulberry with onion intercropping system (Figure. 1).

Method of cropping

Monocropping /sole cropping: One crop or variety is grown alone in pure stands at normal density season after season or year in the same field.

Multiple cropping: cultivation of two or more crops on the same piece of land in Year. The intensification of cropping is in terms of time and space dimensions

Benefits of intercropping in Mulberry

- 1) Better utilization growth resources like light, nutrients and moisture; 2) Economy in space and time.
- 3) Suppression of weeds; 4) Serves as insurance against failure of any one of component crops; 5) Reduces soil crust formation; 6) Improves soil fertility; 7) Ecological stability.
- 8) Controlling the soil erosion; 9) Serves as physical support or shading to some crops.
- 10) Additional yield from unit area; 11) Additional income.

RESULT AND DISCUSSION:

In the present study both of intercropping there are many reports concerning the positive effects and also superiority of intercrop than the pure cropping. Most important advantages of intercropping are the following: 1- Increasing production one of the main reasons for the use of intercropping around the world is produced more than a pure cropping of same land amount. Reported that dry matter production in wheat and beans intercrops had been more than their pure cropping. With onion intercrops in different ratios found that production increased due to reduced competition between species compared competition within species. Considers intercropping as an economic method for higher production with lower levels of external inputs. This increasing use efficiency is important, especially for small-scale farmers and also in areas where growing season is short (sept to May 2019). Production more in intercropping can be attributed to the higher growth rate, reduction of weeds, reducing the pests and diseases and more effective use of resources due to differences in resource consumption. In addition, if there are "complementary effects" between the components of intercropping, production increases due to reducing the competition between them. 2- Greater use of environmental resources advantages of intercropping in the crop production in comparison with pure cropping are due to the interaction between components in intercrops and the difference in competition for the use of environmental resources. If the intercrops components have a difference together in use of environmental resources, so that are complementary in use of this resources, thus use of the resources is more effective than a pure cropping, and the result increased yield (May 2019). In terms of competitive this means that, intercrops components are not competition, physiological, and competition between species is less than competition within species. 2- Reduction of pests, diseases and weeds damage one important advantage of intercropping is its ability to reduce pest and disease damage. In general strategies involved in reducing pest infestation and damage in intercropping can be divided into three groups: First: delimiter crop hypothesis: this way that second species, breaks down the ability of a pest in attack to its host, and is used more in proprietary pests. Second: trap crop hypothesis: means that second species, attracted towards their, pest or pathogen that normally does damage to the main species, and is used more in general pests and pathogenic agents.

CONCLUSION:

Farmer take 1st batch for silkworm rearing in Dec to January. He got 30250Rs from 110kg cocoons at Ramnagarm market, Karnataka. After that second batch of silkworm was taken in April he got 19430Rs from 67 kg cocoons. For fist batch take 150 dfls from Gadhinglanj, Kolhapur for second batch he take 100 dfls from same center. Onion is planted as intercrop in the mulberry. Prime role of intercrop is giving additional income same land. Total onion production 3000 from 750kg. Total income from selling of cocoons is Rs 49680. Total investment is Rs 15000. Total net profit from rearing of silkworm is Rs 34680. In that additional comes from onion production, which is Rs 3000. From both income farmer get Rs 37680. In the Usually present study it is observed frat farmer do not get intercrop they could not take any additional income. Farming with intercrop gives more profit able from same land. In this case due to intercropping farmer is benefited from additional source of income. Here Rs10,000 is additional income from intercropping of onion. Hence, we conclude that any vegetable an noncompetitive intercropping mulberry in profitable. Move oven this is an

additional income to the farmer. We recommend that intercropping must be a common practice with sericulture farmer.

Sr. No	Parameters	
1	Land	1 Acre
2	Type of soil	Black loamy
3	No of mulberry saplings planted in field	6000
4	Fertilizers	Fecal matter of silkworm
5	Method of irrigation	Drip irrigation
6	Total amount required mulberry garden	7000 RS
7	No of onion plant	1500
8	Cost of onion plant	2000
9	Total intercropping amount	9000
Table. 1 Field details and experiment details		

Sr.No.		Kilo	Prize
1	1 st batch of cocoon	110kg	Rs 30250
2	2 nd batch of cocoon	67kg	Rs 19430
3	Onion production	750kg	Rs 3000
Table 2. Economics of tree mulberry leaf production with intercrops (Average of one Year).			

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Figure. 1. Raring of Mulberry Silkworm