

Research Article

Wadi : A boon for sustainable livelihood

■ **B.M. TANDEL, Y.N. TANDEL, R.M. NAIK AND C.K. TIMBADIYA**

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SUMMARY : Krishi Vigyan Kendra, Navsari Agricultural University, Navsari, has introduced Wadi yojana with mango plantation along with intercrop of pigeonpea (green and grain), drilled paddy, Indian bean and vegetable crops like okra, brinjal with integrated nutrient management approach (INM). Demonstrations were carried out at twelve different villages of two districts during 2008 to 2010 and have distributed 40 mango grafts, 40 pitcher pots and basal dosage of fertilizers and manures to one acre Wadi. With the use of pitcher irrigation more than 65 per cent of survival of mango grafts was achieved. With the use of pitcher irrigation, farmers possibly established 25 acre area into Wadi in the waste or barren land.

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BACKGROUND AND OBJECTIVES

Wadi” was first initiated via BAIF – DHRUVA, by implementing orchard model for tribal development at tribal belt of Navsari and Valsad district of South Gujarat. In this model, the plantation of different fruit crops along with forest tree species around border line of orchard with holistic approach to obtain higher production. Increasing population has adversely affects the conservation of natural resources in most of the developing countries. In India most of the rural people uses wood for their fuel and fodder purpose resulting declining forest resources. It not only threatens the existence of our precious flora and fauna but also affect a large number of tribal communities who inhabitants over 10 per cent of the Indian population and are considered as traditional custodians of forest resource. Over 20-25 million families in live of 250 different tribal communities have been living on the edge of the natural forests and depending their livelihood through collection of a wide range of fruits, fibre, honey, lac, gum and medicinal herbs. With increasing in population growth there has been tremendous pressure on the supply of forest products, indiscriminate felling of trees causing

denudation of forest resources and severely affected the livelihood of the tribal.

The Adivasi population in India constitutes about 8.14 per cent of the total population or approximately 85 million people (2001 Census). These households traditionally derive sustenance through forestry, hunting and primitive agriculture practices (Phansalkar and Verma, 2005). However, fast depleting forest, and natural resources, land erosion, lack of access to basic health and hygiene have made seasonal migration into nearby cities – a virtual necessity. In the cities these landless workers have to live in deplorable conditions and often get exploited by middlemen. They are also not able to claim benefits being offered by the state governments due to a lack of identity (Hooza, 2004).

Ineffective labour laws make their situation (especially women) very difficult. Large sections (approx 36%) of the tribals continue to be in a state of deprivation (Pandya, 1988).

Over the last two decades, the Wadi has been transformed into a multidisciplinary programme for rehabilitation. The essence is to provide sustainable livelihood from an acre (0.4 ha) of land for the participating poor family. Each Wadi owner can earn Rs. 20,000-25,000 annually from this small

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Author for correspondence :

B.M. TANDEL
Krishi Vigyan Kendra,
NAVSARI (GUJARAT)
INDIA
Email: hariombhupi@gmail.
com, hariombhupi@nau.in

See end of the article for authors' affiliations

plot of land, once the trees start bearing fruits. There are further opportunities to enhance the income through other supplementary activities. Initially, motivation, imparting skills and providing critical inputs were the key components. Providing means of livelihood during the gestation period was very critical. This is being organized through promotion of agriculture in the inter-space, introduction of short gestation cash crops.

To promote sustainable participatory livelihood programmes (“Wadi” model and “beyond Wadi approaches”) which *inter alia*, aim at economic upliftment through sustainable agriculture, social empowerment, improvement in quality of life including health and women empowerment in tribal predominant areas of the country through demonstrations, projects supported through KVK.

Presently, Wadi is a major programme of socio-economic rehabilitation of the tribals and other backward sections of the society. The programme has relevance for all sections of the society and is replicable throughout the country. Wadi is not only a programme for providing food security and ecological restoration but it is also a strong foundation to build the local capabilities to initiate other community development programmes for socio-economic development. It is a programme demonstrating the feasibility of ecological restoration with poverty eradication. Naturally, the impact of this programme can be measured in terms of additional employment generation, increase in the family income, reduction in migration, food security, good health, improved literacy, greater awareness and high moral values. The programme addresses the problems of the poor which can be replicated throughout the country. It provides sustainable income, clean environment and better quality of life.

Most of the farmers of Tapi district are having small land holding and very poor socio-economic condition. It is probable to improve their livelihood through utilization of small land holdings in a better way through plantation of important fruit plants. “Wadi yojana” was implemented in order to achieve the following objectives:

- To developed skill and capacity of farmers to set up successful wadi project in rural tribal area.

- To create awareness and motivation among rural tribal farmers to build up the career of successful farmer with total confidence.

- To develop employment opportunity to labour and enhance income of farmer.

RESOURCES AND METHODS

KVK scientist first surveyed the project area villages of Tapi and Navsari district and then conducted the training programmes for awareness of Wadi project. Front line demonstrations on Wadi yojana were conducted during 2008-09 and 2009-10 at Tapi and Navsari district. Total 856 demonstrations were carried out in eleven villages, six villages of Tapi district *viz.*, Kapura, Gadat, Pati, Gatadi, Bedi, Champavadi and five villages *viz.*, Sarav, Pathri, Mogar, Limzer, Vandervella of Navsari district covering an area of 244 hectares. Farmers were provided to the inputs like chemical fertilizers- ammonium sulphate, organic manures- Jaykisan manure, pesticides-chlorpyrifos, pitcher irrigation system (10 l/plant) and 40 mango grafts, 40 pitcher pots and basal manures and fertilizers to one acre Wadi. The demonstrations were conducted in irrigated conditions and the texture of the soil ranged from latent to medium black soil. The demonstration included the important technologies like high yielding variety, proper layout, use of manure and fertilizer, training and pruning, inter crop cultivation, irrigation chemical spray and crop management. The inter crop yield data and survival data were recorded from demonstrations.

OBSERVATIONS AND ANALYSIS

Krishi Vigyan Kendra had conducted various extension activities in the farmer’s field for the successful implementation of Wadi project in Tapi and Navsari districts during year 2008-09 and 2009-10. Details of extension activities and its implantation are presented in Table 1.

There was about 578.5 acre area covered under Wadi, but among them plants in more than 407 acre *i.e.* 70.35 per cent area was survived with the installation of pitcher irrigation (10 lit., pot / plant) (Table 2). With the use of pitcher irrigation,

Table 1 : Different extension activities conducted during 2008-09 and 2009-10

Sr. No.	Activities	Year 2008-09		Year 2009-10	
		No.	Beneficiaries	No.	Beneficiaries
1.	Training	20	581	17	1238
2.	Field days	26	458	2	184
3.	Field visit	22	463	26	1204
4.	Literature published	7	7010	2	560
5.	Khedut Shibir	0	0	2	304
6.	Farmers’ scientist interaction	5	148	-	-
	Total	80	8660	49	3490

Table: 2 Multiple intercropping model for sustainable livelihood

Name of village	Area (acre)	No. of grafts given to farmers	Graft survival	Survival (%)	Intercrop	Additional income per acre
Navsari district						
Pathari	19	760	510	67.11	Chilly, Brinjal	50,000 to 1,10,000
Mogar	43	1720	1045	60.75	Brinjal, Cabbage, Tomato	45,000 to 90,000
Sarav	22	880	580	65.91	Onion, Brinjal, Tomato, Coriander	60,000 to 1,00,000
Vandervella	70	2800	2075	74.11	Chilly, Onion, Brinjal	50,000 to 90,000
Limzar	60	2400	1656	69.00	Onion, Chilly	30,000 to 90,000
Tapi district						
Kapura	55.5	2220	1631	73.5	Tur, Brinjal	25000 to 40000
Gadat	93	3720	2604	70.7	Tur, Drill paddy	10,000 to 25,000
Pati	138.5	5540	3990	72	Tur, Okra, Indian bean	25,000 to 59,000
Bedi	38.5	1540	1170	76	Tur	25,000 to 33,000
Champavadi	30.5	1220	793	65	Tur	15,000 to 25,000
Gatadi	8.5	340	227	67	Tur, Drill paddy	7,000 to 25,000
Total	578.5	23140	16281	70.35		

farmers could establish 25 acre area into Wadi in the waste or barren land and that will be fruitful after 5 years of establishment stage. In all villages of Navsari district, most of the farmers have cultivated vegetables as a intercrop throughout the year and harvested minimum income of about Rs. 30,000/- and maximum of Rs. 1,10,000/- per annum, in Limzar and Pathari village, respectively, while the farmers of Tapi district, cultivated intercrops by providing supplementary irrigation in winter earned the minimum income of about Rs 7,000/- and maximum of Rs. 40,000/- in Gatadi and Kapura village, respectively through cultivation of tur, brinjal and Indian bean etc. At last 61.16 per cent survival of Mango grafts were recorded at the end of third year of project.

Authors' affiliations :

Y. N. TANDEL, Aspee Collage of Horti-Forestry, Navsari Agricultural University, NAVSARI (GUJARAT) INDIA

R.M. NAIK, Krishi Vigyan Kendra, NAVSARI (GUJARAT) INDIA

C.K. TIMBADIYA, Krishi Vigyan Kendra, TAPI (GUJARAT) INDIA

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