

KRISHI VIGYAN KENDRA, AMBALA

Increase in productivity and Impact in farmers in the form of Success Stories published in APR (2012-13)**I. A. Title: Success Story of Seed Production & Distribution by KVK Ambala**

B. Introduction: Seed represents both the product of grain –crop production and the beginning of the next life cycle of the crop. A seed contains, in a fairly small package, a tiny plant with embryonic roots, stem and leaves; a food supply that provides energy, fats and proteins needed to support the growth of the seedling during germination; and a seed coat to help protect the contents from insects, diseases and mechanical injury. Improved seeds play an important role in the agricultural production & productivity enhancement. It has been widely accepted that high yielding varieties contribute immensely to the food grain production. Quality of seeds is another aspect which impacts the productivity of crops. Sustainable agriculture depends on the supply of seeds. To achieve the target of food production, there is need to develop the system which makes it possible to continuous availability of seeds. Use of good quality seeds improves the yield of crops by 10-20%. Seed replacement is also essential otherwise there is possibility of the decline or stagnation in yield. Seed replacement rate is a matter of great concern these days and a lot of thinking is going on this aspect among the agricultural experts & policy makers. It is observed that only 20% seeds are replaced every year on the national level. If it is not possible to replace the seeds by 100%, at least 40% seeds should be replaced every year to increase the food grain production. These days only state agricultural universities, research institutes, agriculture department and seed corporations are able to supply the breeder seed, foundation seed and certified seeds, which are not sufficient to meet the target of seed replacement ratio. This problem can be sorted out if the other stakeholders are also involved in the quality seeds production & distribution.

C. KVK Intervention: Keeping in view the above points, KVK Ambala has been involved in quality seed production since its inception. KVK Ambala started producing seeds from the year 1998-99. KVK has been continuously in touch with PAU, Ludhiana, CCSHAU, Hisar, IARI, New Delhi, IARI (Regional Centre) Karnal & DWR Karnal for the procurement of breeder & foundation seeds of rice & wheat. Rice & wheat is the main cropping system of Ambala and therefore, farmers are more interested in the quality seeds of rice & wheat crops. Considering this fact, KVK Ambala has concentrated mainly on the quality seed production of rice & wheat. Not a single year has been left since 1998-99 where seed was not produced. Farmers get seeds at very easy approach. They do not have to far off places like Ludhiana, Hisar, Karnal or Delhi to get seeds. KVK Ambala has constantly producing foundation and certified seeds by procuring breeder & foundation seeds respectively from the different institutes or universities. Not only the farmers of Ambala, even farmers of Yamunanagar & Kurukshetra are getting quality seeds from KVK Ambala at the reasonable price.

Table 1: Wheat Seed Production at KVK, Ambala

Year	Variety	Type of Seed	Quantity of Seed (qt.)	No. of farmers Benefitted
1998-99	PBW-343	Certified	39.85	15
	UP-2338	Certified	15.60	9
1999-2000	PBW-343	Certified	50.00	29
	UP-2338	Certified	15.60	9
2000-01	PBW-343	Certified	66.00	13
	WH-542	Certified	24.80	15
	PBW-343	Foundation	66.40	28
	UP-2338	Certified	21.69	11
	PBW-373	Certified	18.40	5
2001-02	PBW-343	Certified	46.40	8
	PBW-373	Certified	26.61	21
	HD-2687	Foundation	38.61	6
2002-03	PBW-343	Certified	75.60	24
	WH-711	Certified	4.11	7

Year	Variety	Type of Seed	Quantity of Seed (qt.)	No. of farmers Benefitted
	PBW-373	Certified	38.19	13
	HD-2687	Certified	89.57	47
	PBW-396	Certified	9.81	4
2003-04	PBW-343	Certified	154.40	35
	WH-711	Certified	17.28	15
	PBW-373	Certified	35.97	10
	HD-2687	Certified	28.32	17
2004-05	PBW-343	Certified	80.59	33
	WH-711	Certified	78.00	29
	PBW-373	Certified	27.76	16
	HD-2687	Certified	6.35	8
2005-06	WH-711	Foundation	4.00	5
	WH-711	Certified	58.96	32
	PBW-373	Certified	20.21	6
	HD-2687	Certified	11.46	7
	PBW-502	Certified	17.20	32
2006-07	WH-711	Foundation	8.80	6
	WH-711	Certified	71.20	30
	PBW-502	Certified	62.20	32
2007-08	WH-711	Certified	36.00	16
	PBW-502	Foundation	7.98	8
2008-09	PBW-343	Certified	24.63	10
	WH-711	Foundation	10.20	8
	HD-2851	Certified	21.04	20
2009-10	WH-711	Foundation	13.60	5
	WH-711	Certified	36.26	18
	PBW-343	Certified	21.92	21
	HD-2733	Foundation	12.08	2
	DBW-17	Certified	19.20	22
2010-11	WH-711	Certified	28.80	12
	HD-2733	Certified	25.60	15
	DBW-17	Certified	29.20	20
	HD-2894	Certified	10.59	9
2011-12	HD-2894	Foundation	8.17	9
	HD-2733	Certified	36.40	22
	HD-2733	Foundation	18.00	7
2012-13	HD-2733	Certified	35.36	24
	HD-2733	Foundation	11.00	5
	HD-2894	Certified	35.38	25
	HD-2894	Foundation	9.00	6
	PBW-621	Certified	21.45	27
Total Seed (Wheat) produced			1801.80	888

Table2: Rice Seed Produced at KVK, Ambala

Year	Variety	Type of Seed	Quantity of Seed (qt.)	No. of farmers Benefitted
1999-2000	Govind	Certified	9.25	16
	HKR-120	Certified	7.35	12

Year	Variety	Type of Seed	Quantity of Seed (qt.)	No. of farmers Benefitted
2000-01	Govind	Certified	6.60	17
	HKR-120	Foundation	4.95	13
	HKR-46	Certified	6.35	20
	IR-64	Certified	6.40	7
2001-02	PR-108	Foundation	5.85	18
	PR-114	Certified	7.55	41
2002-03	PR-114	Certified	36.00	59
	PR-116	Certified	30.20	24
	PB No. 1	Certified	16.80	40
	HKR-47	Foundation	2.30	18
2003-04	PR-114	Certified	53.50	31
	PR-116	Certified	18.30	18
	PB No. 1	Certified	9.70	11
	Pusa Sugandh – 5	Foundation	9.95	21
2004-05	CSR-30	Certified	30.00	17
	PR-114	Certified	18.86	27
	PR-116	Certified	12.30	23
	PB No. 1	Certified	37.88	32
2005-06	CSR-30	Certified	10.00	13
	PR-113	Certified	16.40	26
	PR-114	Certified	23.40	51
	PR-116	Foundation	11.40	21
	PB No. 1	Certified	16.40	34
	HKR-47	Certified	14.80	79
2006-07	PR-114	Certified	23.88	20
	PB No. 1	Foundation	13.76	33
2007-08	PR-114	Certified	30.80	21
	HKR-47	Certified	37.30	46
2008-09	PR-114	Certified	17.26	22
	Pusa-1121	Foundation	7.90	18
2009-10	PR-114	Certified	19.25	25
	Pusa-1121	Certified	10.00	15
2010-11	PR-114	Certified	38.40	56
	Pusa-1121	Certified	25.80	31
	Improved PB No.1	Certified	18.20	11
2011-12	PR-114	Certified	15.00	34
	HKR-127	Certified	14.90	74
	Pusa-1121	Foundation	9.50	26
2012-13	PR-114	Foundation	8.00	17
	HKR-127	Certified	8.90	25
	Pusa-1121	Certified	11.00	25
Total Seed (Rice) produced			732.34	1188

D. Output: KVK Ambala has been involved in the production and distribution of seeds which have been recommended by the state agricultural universities, research institutes or state agricultural department. KVK Ambala has produced the seeds of varieties PBW-343, UP-2338, WH-542, PBW-373, HD-2687, WH-711, PBW-396, PBW-502, HD-2851, HD-2733, DBW-17, HD-2894, PBW-621 under wheat and varieties Govind, HKR-120, HKR-46, IR-64, PR-108, PR-114, PR-116, PB No.1, HKR-47, Pusa Sugandh-5, CSR-30, PR-113, Pusa-1121, Improved PB No. 1, HKR-127 under Rice. These varieties have been widely accepted by the farmers and have been in much demand. KVK Ambala has kept

pace with the time. This fact can be manifested by the seeds varieties produced in different years. The variety which was popular & recommended at that time was produced by the KVK. As the years changed, the varieties also changed. For example, PBW-343 variety of wheat was recommended by the universities during 1999-2000, therefore, it was produced by the KVK at that time. During 2010-11, it was not recommended by the universities, so it was stopped for seed production by the KVK, Ambala. During 2012-13, it has produced & distributed the seeds of varieties HD-2733, HD-2894, PBW-621 under wheat and seeds of varieties PR-114, HKR-127 & Pusa-1121 under Rice. It is further hoped that this activity will continue in the future years and will satisfy the seed needs of the farmers of Ambala.

E. Outcome: KVK Ambala has produced & sold 1801.80 qt. of wheat seeds since 1998-99 to 2012-13 and benefitted 888 farmers whereas in case of Rice, it has produced & sold 732.34 qt. of seeds and benefitted 1188 farmers. The quantity of Rice seeds has been less (732.34 qt.) as compared to wheat (1801.80 qtl.) because generally the farmers of Ambala district prefer to grow short duration hybrid varieties.

F. Impact: Due to sustainable process of seed production by KVK Ambala, impacts have been observed by us. KVK, Ambala tries its best to produce quality seeds & pure seeds, the farmers have been very positive to seeds produced by KVK Ambala. Seeds produced at KVK, Ambala are sold like hot cakes specially in the case of wheat seeds. Within two days the stocks of wheat get empty. In general, 15-20% increase in yield has been noticed due to pure & quality seeds. Not a single farmer has reacted negatively to KVK, Ambala seeds. Some farmers even keep the grains to be used as seeds for the next sowing season. Farmers motivate other farmers of the area to purchase the seeds from KVK Ambala rather to go private seed shops as the farmers do not trust the purity of seeds sold at private seed shops.



**Seed production unit visited by
Hon'ble DDG Dr. K. D. Kokate**



**Seed packing being observed by
Dr.A.M.Narula, ZPD, ICAR**

2. SUCCESS STORY OF DAIRY FARMING FOR INCREASING MILK PRODUCTION IN AMBALA

Introduction

Haryana holds a special place in the field of milk production and produces 60.6 lac tonnes, out of which 80 percent is contributed by buffaloes. According to livestock census-2007, the buffalo population in the state is 59.53 lacs and cattle is only 15.52 lacs. Consequently per capita per day availability of milk in the state had increased from 352 g in 1966-67 to 673 g in 2009-10, which is 2nd highest next to Punjab.

Demand for milk is increasing day by day owing to increase in population and disposable income of the individuals. Dairy farming is being adopted as a subsidiary occupation and not as a primary occupation. Since the dairy farming has proved to reduce the income inequality among the farmers and as an instrument for economic and social change for rural masses, therefore, there is a need to look the dairy farming activity for viable proposition. Commercial aspects of livestock production are gaining importance due to changes in land utilization pattern, agriculture and socio-economic conditions. Livestock rearing is a means for sustainable livelihoods in rural areas.

Ambala district is on the border of Punjab state and abundant availability of green fodder in the district motivated the farmers to adopt high yielding crossbred cattle. Ambala has 2.23 lacs buffaloes and 60 thousand cattle population.

Interventions by KVK

KVK organizes training programmes in dairy farming. These trainings help farmers in gaining technical skills and the knowledge to start the dairy farming for self-employment and improve the existing management practices for better and sustainable production in line with the government's policy of diversification in agriculture. In these programmes all aspects of dairying like ideal housing, breeding and management, hay and silage making, quality and clean milk production including prophylaxis are taught and correct practices are demonstrated to them. The common field practices like hay and silage making, computation of ration, urea treatment of wheat straw, naval cord cutting, anti-tick bath application and teat dip method are demonstrated to the dairy farmers. KVK, conducted 7 vocational training for rural youth (286 participants) and 40 short duration courses for practicing farmers (716 participants) during the years from 2008 to 2010 (Figure 1). KVK also arranged exposure visits of the trainees to the units of progressive dairy farmers/ National Dairy Research Institute, Karnal to motivate them.

Technology assessed and demonstrated

KVK assessed the new technologies/ research outcome of the University/research institute in a micro situation which may offer solution to a location specific problem

During the last four years, the major technologies assessed, demonstrated and disseminated by KVK and adopted by farmers are mainly in the field of nutritional and health management :

- Mineral mixture supplementation
- Computation of balance ration
- Shatavari, a herbal supplement
- Post milking teat dip products
- Maize + Cowpea- a nutrition fodder

Literature

Literature in the form of popular articles related to dairy namely feeding management of lactating animals and silage making in Hindi language for the benefit of dairy farmers have been published.

Farm Advisory Service/ Other activities

- Providing information with regard to value addition
- Providing necessary advice for vaccination against contagious diseases
- Participation in Melas, Exhibitions organized by Agricultural Universities and other agencies
- Guidance for diversification of agriculture/integrated farming system
- Organizing animal health camps in villages

Output

After getting the required motivation and training, the farmers adopted dairy farming as an enterprise. The department of Animal Husbandry and Dairying, too played crucial role by providing subsidies for purchasing animals, milking equipments and construction for shed etc. to needy and un-employed rural youth. A survey was conducted to assess the impact of trainings/technology dissemination on various aspects of dairy farming and income of the farmers. Forty five farmers in the district were selected for this purpose. The results are summarized in Table 1 and 2.

Breed Improvement

In Ambala district majority of the animals, reared by the farmers were local/desi buffaloes, whose productivity was very low. After KVK intervention, farmers were convinced to replace indigenous cows and buffaloes with improved breeds, particularly Holstein Friesian and Murrah, through Artificial Insemination (AI). Around 70 percent farmers in the district used AI on regular basis. Hence, the productivity of indigenous animals and also no. of good quality animals increased, because they were convinced that good quality animals have major role in increasing milk production.

Improvement in feeding practices

Various technological interventions like mineral supplementation, balanced feeding, silage making and urea treatment of wheat straw were introduced in the field (Table 1). It is evident from the table that only 6.67 % farmers were feeding mineral mixture to their animals before the training. Later on, the percentage of farmers increased from 6.67 to 68.89%. The farmers reported that repeat breeding and anoestrus was a serious problem in their herds particularly anoestrus in buffaloes and repeat breeding in crossbred cows. Probably, this was the major cause of the long calving intervals. Mineral deficiencies were suspected to cause these problems. Use of mineral mixture in concentrate feed was demonstrated to the farmers to overcome these problems. Farmer's response was very encouraging; they observed an increase of 0.5 to 1.0 lit. /animal in milk yield due to feeding of mineral mixture.

The majority (93.33%) of the farmers were providing only oil cakes/maize/wheat to their milch animals and they did not know about the concentrate mixture.

Efforts were made to prepare the concentrate mixture for animals with the locally available resources which is also low cost input. 53.12% farmers have started to prepare the concentrate with available local resources after getting the appropriate knowledge through trainings, group discussion followed by method demonstration.

Feeding of UMMB and urea treated straw to dairy animals were also demonstrated but the adoption level was found to be very low due to the fact that unavailability of UMMB and labour problem in mixing of urea to straw. Secondly, since it contains urea therefore some of the farmers because hesitant to feed it to their animals with the perception that fertilizer grade urea is a poison.

Low cost milk production is the key for the success a dairy farmer and this can be achieved only through feeding of green fodder round the year. But the availability pattern of green fodder is

very erratic in Ambala district. It is surplus more during Monsoon and in February to April while there is lack during May-June and November-December. To overcome this problem surplus fodder should be conserved in silo pit for use in lean period. This topic was taught and demonstrated in detail during the training programmes but on reviewing, it was found that only few farmers made silage and fed to their animals.

State government as well as Central government has started assistance schemes in the sector and which are soon going to benefit the dairy owners.

Disease Management

Apart from improvement in breeds of dairy animals and their management in a better and scientific way, animal health plays a major role in increasing their milk production. Reduction in milk production of dairy animals results from a number of metabolic disorders, viral, bacterial, parasitic and fungal diseases. Around 98 percent of dairy farmers adopted disease control practices by regularly vaccinating their animals against the foot and mouth disease and Haemorrhagic Septicaemia, and by deworming them before and after Monsoon. Some farmers (15.56%) also adopted post milking teat dip products to prevent mastitis in cross bred cattle. Thus there was good impact of the awareness as well as training/technologies disseminated by KVK, Ambala during the last four years.

Impact of KVK Intervention

With the efforts of State & Central Government in providing subsidy facilities as well as sound technical back-up provided by the KVK experts to dairy farmers, presently about thirty Hi-tech dairy units with minimum of 20 or more milch animals have been established in the district. These dairy units generate more employment, normally one person gains full employment by keeping 2-3 milch animals. Similar for unit of 5, 10 and 20 milch animals the other members of the family also gain employment.

Outcome

After the KVK intervention there was a gain in knowledge and skill of the dairy farmers which resulted in

- Herd size increased from 5.61 to 7.92
- Increase in number of high yielding crossbreed cattle and Murrah buffaloes
- Around sixty per cent reduction in cost of disease management
- Reduced calving interval
- Increase in milk production
- Reduced mortality in calves and increases in growth rate by 30-40% in calves between 3 and 12 months of age
- Reduction in incidence of mastitis from 22 to 3% due to use of teat dip products after milking in crossbreed
- Improved reproductive performance of dairy animals
- Improved in feeding practices like use of mineral mixture, balanced feed and also silage making

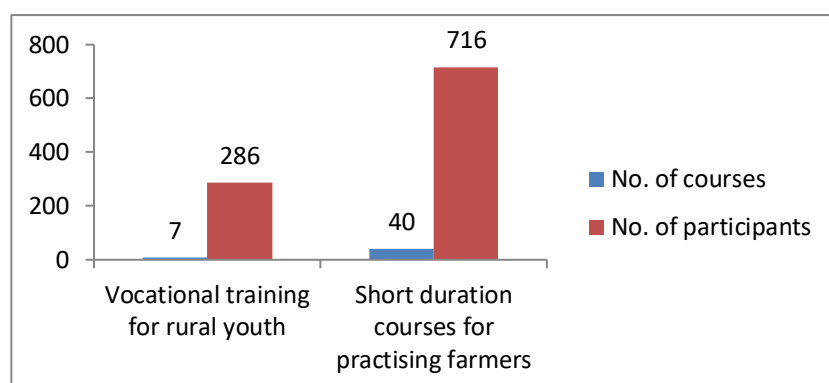
Table 1 Change in management practices after KVK intervention

S. No.	Indicator	Before			After		
		Never	Some times	Always	Never	Some times	Always
1	Balanced feeding and feed preparation	93.33	0.00	6.67	35.55	11.11	53.12
2	Use of Mineral mixture	80.00	13.33	6.67	0.00	31.11	68.89
3	Use of UMMB	100.00	0.00	0.00	95.56	4.44	0.00
4	Use of Silage	100.00	0.00	0.00	82.22	6.67	11.11
5	Urea treatment of wheat straw	100.00	0.00	0.00	97.78	0.00	2.22
6	Use of AI service for breeding	48.89	35.55	15.56	13.33	15.56	71.11
7	Vaccination	6.67	11.11	82.22	0.00	2.22	97.11
8	De-worming	35.55	31.11	33.33	4.44	17.78	77.78
9	Use of post milking teat dip products	86.67	13.33	0.00	46.67	37.78	15.56

Table: 2 Impact of KVK Interventions on milk production and income of the dairy farmers

Particulars	Before	After	% change
No. of buffaloes/farmer	4.64	5.80	25.00
No. of crossbreed cattle/farmer	0.97	2.12	118.56
No. of cattle and buffaloes/farmer	5.61	7.92	41.18
No. of milch animals/farmers	3.20	5.73	79.06
Milk yield, litre/animal/day	6.58	7.20	9.42
Milk yield, litre/farmer/day	21.06	41.26	95.92
Green fodder (kg/day/animal)	20.00	20.00	-
Dry fodder (kg/day/animal)	28.00	28.00	-
Concentrate (kg/day/animal)	45.00	52.50	16.67
Total feed cost (Rs./day/animal)	93.00	100.50	8.06
Cost of labour (Rs./day/animal)	14.00	12.00	16.67
Miscellaneous expenses (Rs./day/animal)	5.00	3.00	66.67
Total cost (Rs./day/animal)	109.00	115.50	5.96
Milk rate (Rs./litre)	21.25	21.25	-
Gross return (Rs./day/animal)	139.82	153.00	9.43
Net return (Rs./day/animal)	30.82	37.50	21.67
Net return (Rs./day/farmer)	649.07	1547.25	138.38
Cost/litre of milk	16.56	16.04	3.24

*Cost of green fodder, dry fodder and concentrate @ Rs. 100, 350 and 1500/- per quintal, respectively

**Fig. Trainings imparted on scientific dairy farming during last five years**



Glimpse of training session of rural youths



Practical session on enrichment of wheat straw



Visit of Hon'ble DDG (ICAR) at Dairy unit



Visit of ZPD, Zone-I, Ludhiana at Dairy Unit



A view of animal health camp



A practical session during vocational training

3. A CASE STUDY OF PIG FARMER

Name of Farmer	:	Sh. Thath Singh
Father's Name	:	Sh. Ram Swaroop Singh
Address	:	V.P.O. Bhood, Block Barwala, Distt. Panchkula
Education qualification	:	8 th
Phone No	:	09467223619

Despite the fact that pig rearing is a profitable enterprise most of the progressive farmers even today hesitate to adopt it due to prejudicial sentiments in our society against Pig Farming. A majority of meat eaters also do not consume pork. In spite of these drawbacks, the consumption of pigs has greatly increased in recent years due to nutritional awareness in people. Pig is prolific breeder & cheap source of protein. Pig rearing fits very well with mixed farming & can also be

complimentary to intensive crop production operations. In Ambala, pig farming has a special significance & can play an important role in improving the socio economic status of a sizable section of the weaker community.

About the Farmer

Sh. Thath Singh is a small farmer. He was continuing with the conventional farming on his farm, but he was not getting enough income to sustain himself. Another big problem was that his land was undulating and he was facing hurdles in agricultural operations. In nut shell, he was not satisfied with his farming. So he decided to try his luck in other venture. He came to Krishi Vigyan Kendra (KVK), Ambala (Tepla) and discussed on agriculture and allied sectors enterprises. And finally, he decided to start pig farming . The main reason to adopt piggery was availability of waste material for feeding in nearby places of his village. He registered and joined pig training from KVK of 15 days. After getting training he started a small piggery unit.

Establishment of Unit

He constructed a low cost pig house costing Rs. 70,000/- and purchased 12 piglets of Large White Yorkshire (2-3 months old) from KVK worth of Rs. 18000/-. He started his small Pig unit mainly for the pork production but also kept two-three sows for production of piglets. He reared pigs till their weight reached upto 70-80 kg. of each and when the market price was high, he sold the pigs. The income generated through the sale of pigs, he purchased another group of piglets for fattening alongwith his own piglets. Presently he extended his unit with 30 sows and 5 boars producing 150-200 piglets per year.

Feeding Management

Feed accounts about 80% of the total cost of pig production. Efficient uses of cheaper rations based on locally available materials and agricultural by products are essential for profitable pig production. Profit in pig farming can be increased by reducing the cost of production. Sh. Thath Singh reduced feed cost by feeding of waste of canteen, hostel and broiler offal with supplementary feeding of mineral mixture and common salt. Therefore, he purchased waste materials from nearby private college, hostel and hotels. The rate is decided on monthly/yearly basis and also on the basis of quantity of the waste as he required. Feeding of waste material reduced the cost of production thereby increasing the net income from this enterprise.

Expenditure and income of the Pig Unit

S.I	Particulars	Year 2010-11	Year 2011-12	Year 2012-13
1	Total Expenditure (Rs.)	9500-00	15,500-00	1,60,000-00
2	Total Income (Rs.)	62000-00	1,20,000-00	6,00,000-00
3	Net Income (Rs.)	52500-00	1,04,500-00	4,40,000-00



A view of Pig unit



KVK Scientist interaction with farmer at Pig Unit