

KVK Kathua sustaining farm production and income

A Success story of Yellow Rust management in wheat



KRISHI VIGYAN KENDRA KATHUA
Directorate of Extension
Sher-e-Kashmir
University of agricultural Sciences & Technology
of Jammu



Wheat is a significant rabi crop of Kathua district grown over an area of 44,000 ha area. In recent past, yellow rust emerged as the major disease of wheat in Jammu division, causing huge loss to the farmers. KVK Kathua through its efforts succeeded in cutting down the losses due to the damages caused by yellow rust to almost nil. The activities like On-farm trials, frontline demonstrations, awareness programmes, campaigns etc. conducted by KVK has resulted in enhancing the farmers' knowledge in managing the menace. Moreover, the regular introduction of new improved disease resistant varieties of wheat by KVK Kathua has resulted in increasing farm productivity and income.

Problem statement

During the year 2011-12, yellow rust in wheat appeared in epidemic form in Kathua district. Losses ranging from 10 to 15 q/ha were recorded in the district. This was primarily due to high frequency of occurrence of new race of the rust pathogen 78S84. Popular wheat cultivar PBW-343 became susceptible to yellow rust. The morale of farmers shattered by the huge losses faced due to the incidence of yellow rust in wheat. There was panic among all the stakeholders, including government and department officials. One year of destructive show by yellow rust put the farmers of Kathua district in complete dilemma in respect of growing wheat in next season.

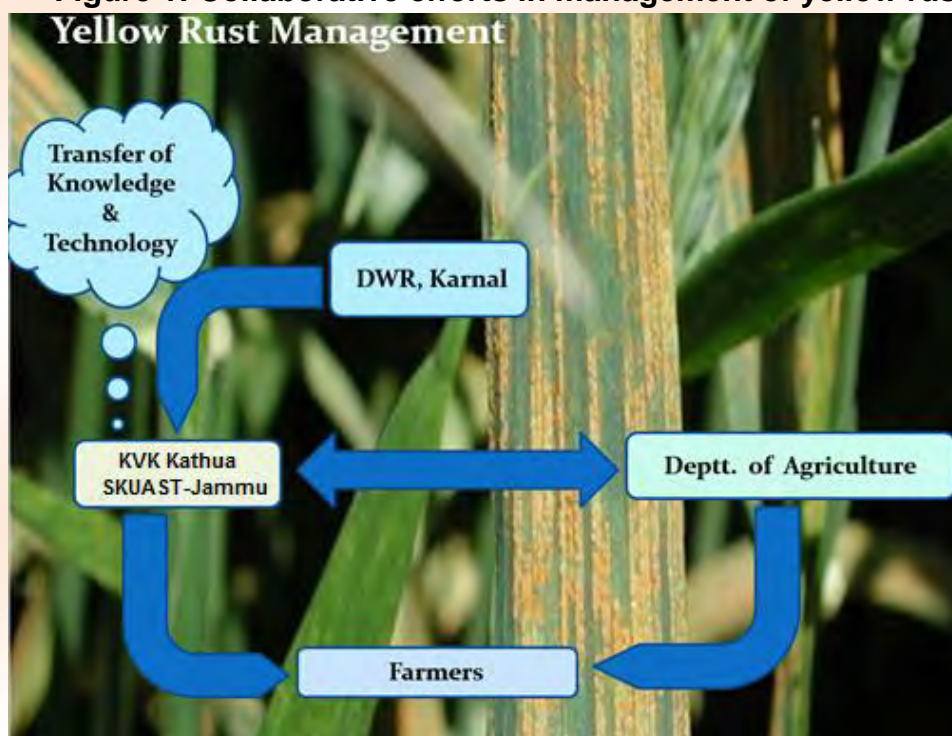
KVK Interventions

KVK Kathua has made all the efforts to educate the farmers about the disease and convinced them to manage the disease for avoiding losses to the farmers. Some of the major activities undertaken by KVK Kathua are discussed below:

Putting Collaborative efforts

KVK Kathua made collaborative efforts with district, state and national level organisations for managing the yellow rust in wheat, as shown in Figure 1. KVK along with department of agriculture formulated the strategy to contain the disease through their joint efforts by providing awareness to the farmers by first monitoring the disease, on farm trials and demonstrations to further sensitise the farmers. The national level organizations like Directorate of Wheat Research now Indian Institute of Wheat and Barley Research, Karnal was also involved for framing effective strategies against the menace of yellow rust.

Figure 1: Collaborative efforts in management of yellow rust



Standardizing & popularizing management practices

KVK Kathua had conducted on-farm trials on management of yellow rust for standardisation of the local specific technologies for management of yellow rust. The effective management practices have been demonstrated through Frontline demonstrations on farmer' fields. The detail of activities carried out by KVK Kathua in this regard is given in Table 1.

Table 1: Activities of KVK Kathua for management of Yellow rust

Year	Activity	No. of trainings	No. of participants
2011-12	Trainings/Awareness Programmes	3	105
	OFTs	5	5
2012-13	Trainings/Awareness Programmes	3	153
	OFTs	10	10
2013-14	Trainings/Awareness Programmes	4	210
	Demonstrations	20	20
2014-15	Trainings/Awareness Programmes	5	512
	Demonstrations	40	40
2015-16	Trainings/Awareness Programmes	6	432
	Demonstrations	48	48
2016-17	Trainings/Awareness Programmes	6	465
	Demonstrations	47	47

Demonstrations on new improved varieties

The adoption of disease resistant varieties is an important key in management of yellow rust. The farmers were advised to abandon the cultivation of susceptible wheat cultivars like PBW-343 and PBW-550 to reduce the initial build-up of inoculum of the pathogen. Seed treatment campaigns were organized to make farmers aware about treatment of farm produced/saved seed. Besides, new rust resistant cultivars like PBW-621, DPW-621-50 and HD-2967 were popularized among the farmers. Farmers were also advised to spray propiconazole @ 0.1% using 500 liters of spray solution per hectare to manage yellow rust and reduce losses. KVK Kathua has also introduced and expand some new disease resistant varieties through frontline demonstrations, as shown in Table 2 for negating the impact of yellow rust. Following a proper strategy, KVK Kathua has recommended the change in variety of wheat after every three to four years. In the last five years, KVK has demonstrated four different disease varieties of wheat for management of yellow rust.

Table 2: Activities of KVK Kathua for management of Yellow rust

Year	Variety	No. of demonstrations	Area Covered (ha)
2011-12	HD-2967	10	4
	PBW-621	17	6
2012-13	HD-2967	17	7
	PBW-621	5	5
2013-14	HD-2967	26	12
	PBW-621	41	18
2014-15	HD-2967	32	13
2015-16	HD-2967	34	16
	HD-3086	24	7
2016-17	HD-3086	28	13

Evaluation

The varieties demonstrated by KVK Kathua under frontline demonstrations shown impressive results. The economics of new varieties has been presented in Table 3. All the disease resistant varieties demonstrated by KVK Kathua has produced B.C ratio of more than 3, which shows the impact of KVK technologies in improving the economy of the farmers.

Table 3. Economics of KVK interventions

Varieties	Yield q/ha		
	HD2967	PBW 621	HD3086
Highest Yield	46.60	44.20	45.23
Lowest Yield	39.60	40.30	40.47
Average Yield	43.10	42.20	41.34
Local Check	34.20	34.80	33.23
% Increase in yield	15.8	21.20	24.40
B.C. ratio	3.99	3.90	3.92

Outcome and Impact

The farmers in their feedback acknowledged the role of new varieties and management practices recommended by KVK Kathua. The farmers have developed the habit of seed treatment in general and more particular in wheat crop. The Figure 2 shows the economic returns of the management practices popularized by KVK Kathua in cultivation of wheat. The efforts of KVK Kathua has brought an average additional income of Rs.15,520/- per hectare annually from wheat cultivation and if the results are being simulated at district level for around 44,000 hectares of wheat, the loss of wheat due to disease incidence has been reduced annually by an amount of Rs. 6828 lakhs.

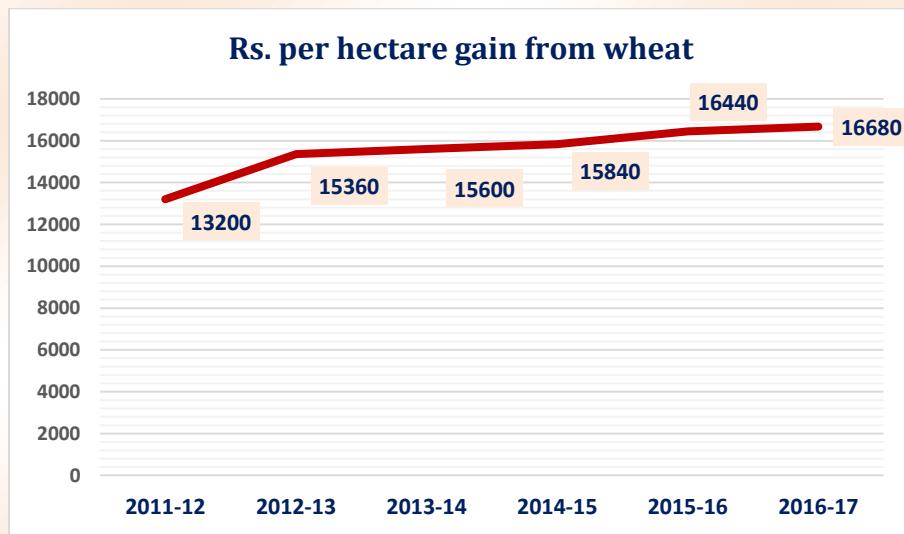
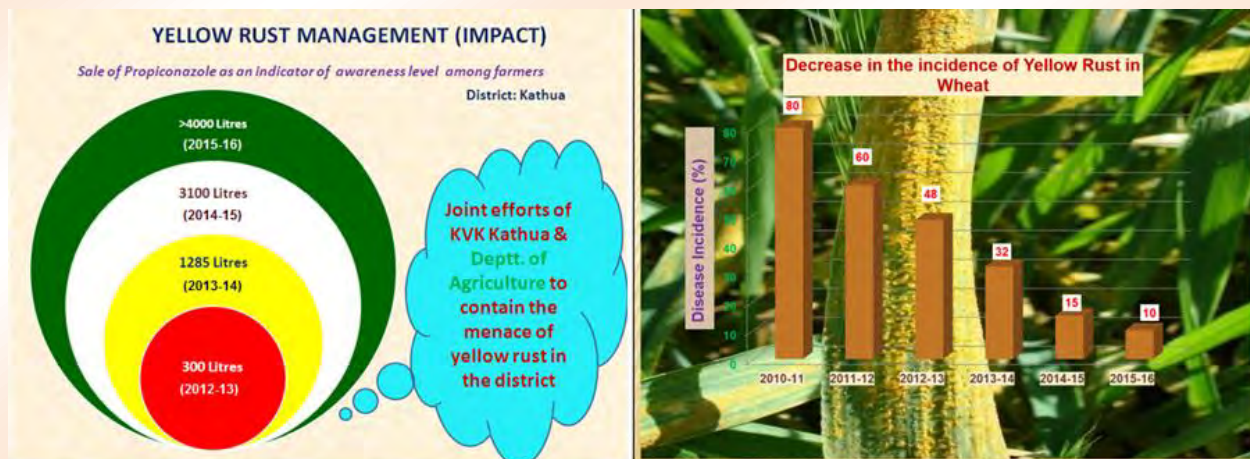


Figure 2: Economic returns of wheat management practices

Further, the sale of *Propiconazole* has increased 10 times within the span of last five years which is an indicator of increased awareness level among farmers about the management of yellow rust in wheat.



Inspiration

Prof. Pradeep K. Sharma
Hon'ble Vice Chancellor, SKUAST-Jammu

Guidance

Dr. R.K. Arora
Associate Director Extension & I/c KVKs

Compiled & Edited by

Dr. Amrish Vaid
Dr. Anamika Jamwal
Dr. Pawan Kumar Sharma

Contributors

Vishal Mahajan
Berjesh Ajrawat
Vijay Kumar Sharma
Saurav Gupta



For details, please contact at: Krishi Vigyan Kendra Kahua, Rajhani, Kathua – 184 101, Jammu (J&K); Telephone: 01922-232989; E-mail: kathuakvk@gmail.com