

CROWDSOURCING AND PARTICIPATORY VARIETAL TRIALS (PVS) IN BIHAR

Crowdsourcing is a novel concept where farmers are the decision makers for the trials. For ages, seed houses have been bringing in new high yielding varieties and farmers have mostly little choice to choose for their farming. This scenario is now reversed as they will be given small amounts of seeds of many varieties that they have to grow in small plots so as to analyze the performance under a given set of climatic conditions. The climatic data are recorded by deploying advanced sensor-based data logging hardware's (eg: iButtons™). The PVS (Participatory Varietal Selection Trials) are more technical and scientific in nature where there are 20-30 varieties trialed at different villages in a region. All these data are analyzed and feedback was taken for the farmers and they were asked which are the varieties they found promising and were outperforming their original cultivated varieties.

In this project period we had two sets of trials in the Districts of Vaishali and Muzaffarpur in Bihar. The first set had 8 varieties trialed among 125 farmers across 2 villages in Vaishali and 8 villages in Muzaffarpur. The varieties were:

Akshaydhan
IR 36
MTU 1001
MTU 1010
Samba Masuri
Sampada
Sugandh Samba
Varadhan

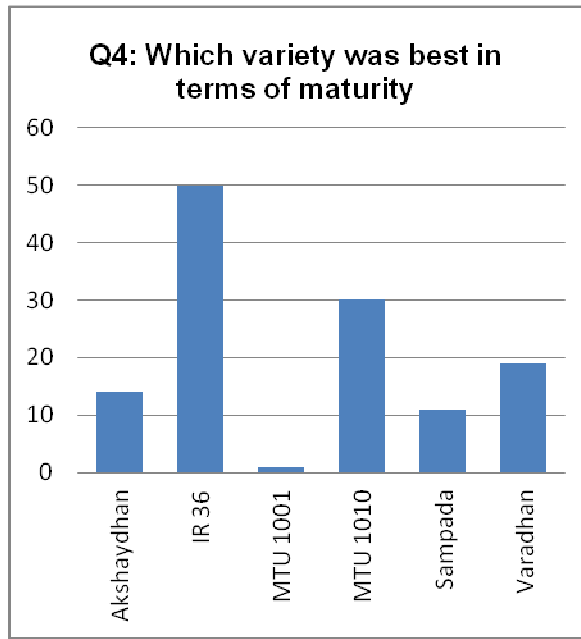
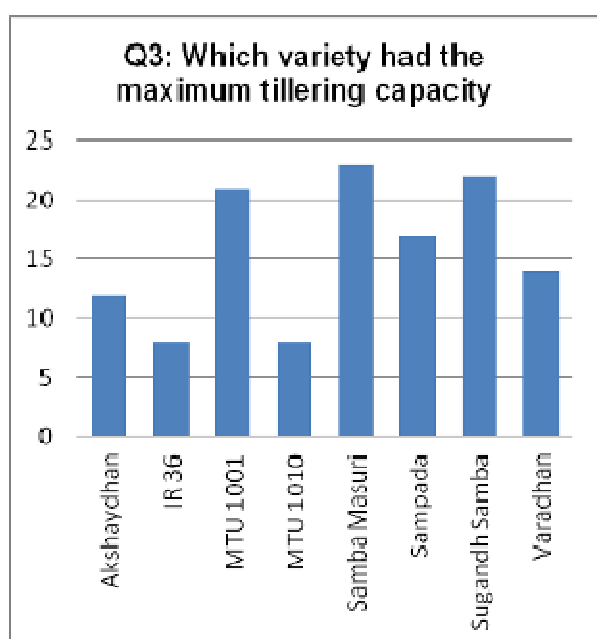
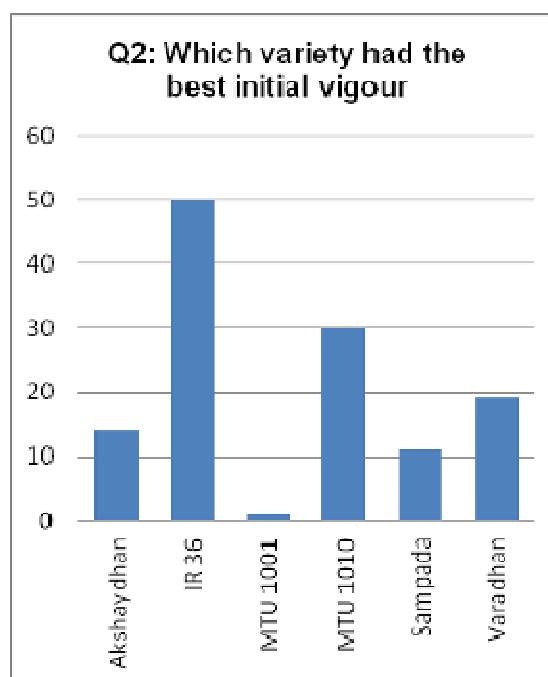
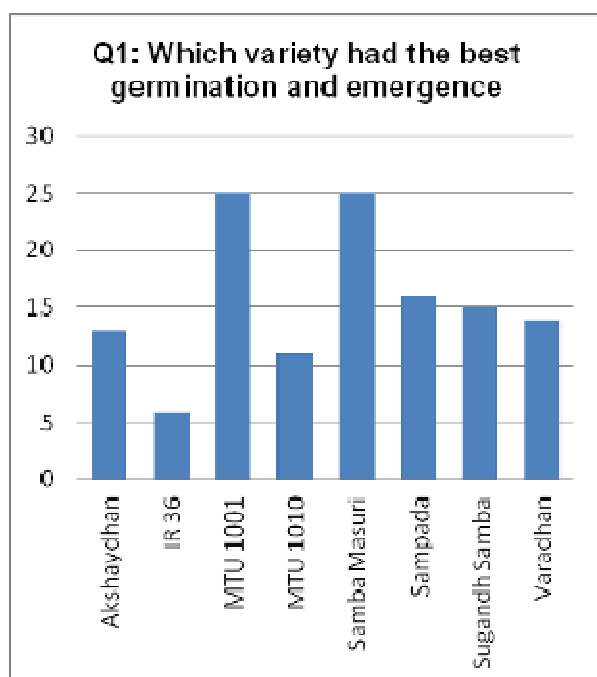
In the second set, we had 11 varieties trialed among 200 farmers across 5 villages in Muzaffarpur district in Bihar. The varieties were:

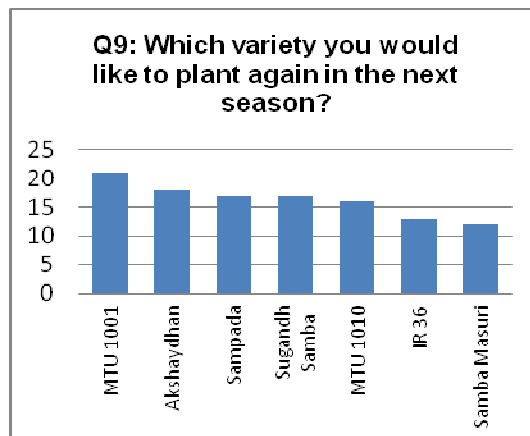
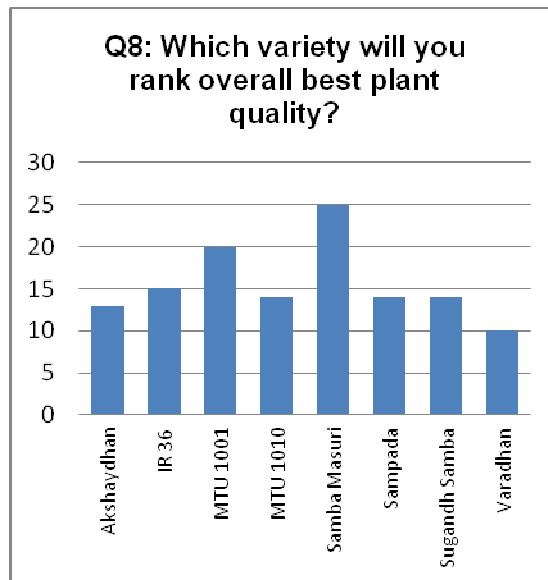
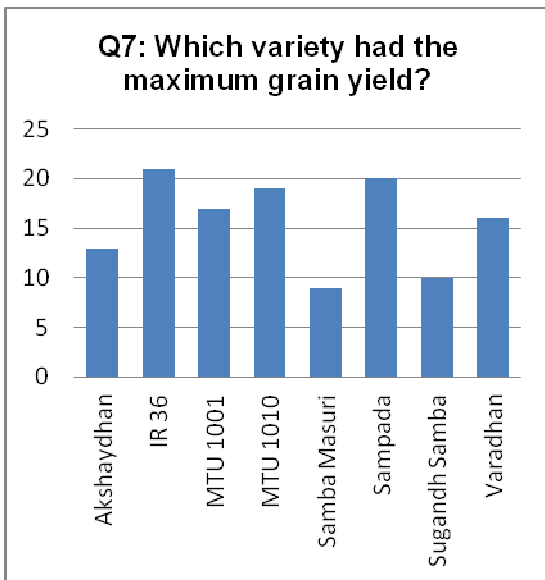
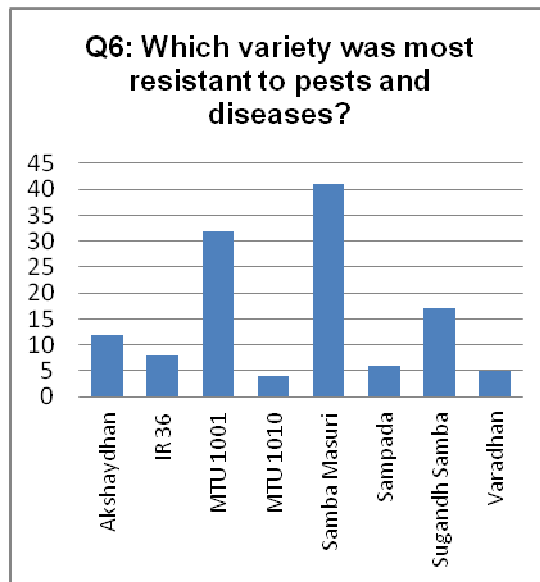
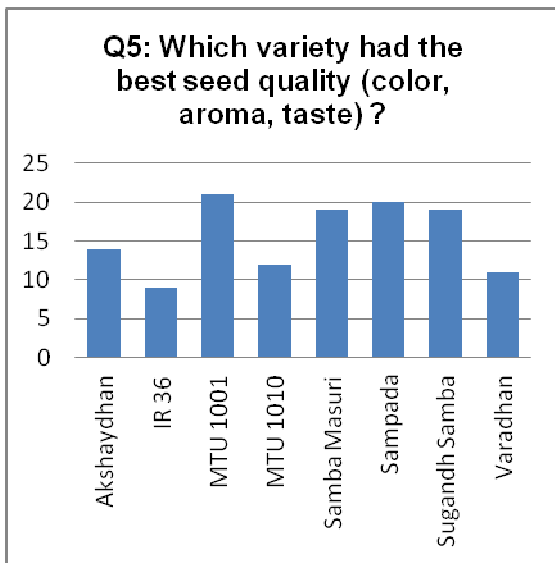
HKR 47
IR 64
PNR 381
PR 113
Prabhat
Pusa 1176
Pusa 44
Pusa Basmati 1121
Rajendra Bhagwati
Rajendra Suwasini
Sugandh 5

In the crowdsourcing trials, there were 9 questions that the farmers were asked to answer about the 3 varieties that they have grown in their farm. The questions were

1. Which variety had the best germination and emergence?
2. Which variety had the best initial vigour?
3. Which variety had the maximum tillering capacity?
4. Which variety was best in terms of maturity?
5. Which variety had the best seed quality (color, aroma, taste) ?
6. Which variety was most resistant to pests and diseases?
7. Which variety had the maximum grain yield?
8. Which variety will you rank overall best plant quality?
9. Which variety you would like to plant again in the next season?

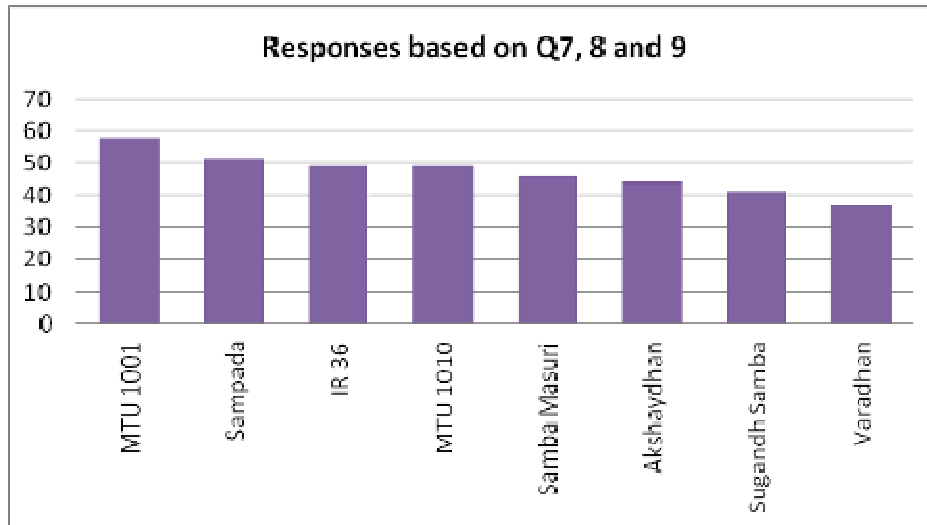
So based on these, the following is the result of the trials depicted as graphs. The values are number of farmers considered that particular variety as the best.





Analyzing the responses, we confer that the questions 7, 8 and 9 gives an overall view on the performance of a variety as perceived by the individual farmers after growing them a full season

in their fields. So based on that, if we combine the rankings to these 3 responses, we will find that MTU 1001 is the best variety followed by Sampada, IR 36 and MTU 1010 (see graph below)



Analysis on which variety had the best germination and emergence?

Out of the 125 respondents, 25 each has ranked MTU 1001 and Samba Mahsuri as the best in terms of emergence/germination. This also reflects the initial seed vigor of these varieties. Close next Sampada and Sugandh Samba was considered having good initial germination.

Analysis on the variety that had the best initial vigour?

The variety IR 36 showed higher initial vigor. Though the initial germination was not that much preferred by the farmers but this variety caught up later to give a good initial vigor. thirty out of 125 farmers liked MTU 1010 and this variety came close second after IR 36 in initial vigor.

Farmers' choice on tillering capacity

MTU 1001, Samba Mahsuri and Sugandh Samba topped the farmers' choice in tillering capacity. Next in the line came Sampada in the farmer's verdict.

Choice in terms of grain quality

The rice varieties MTU 1001, Sampada, Samba Mahsuri and Sugandh Samba was liked the best by majority (>60%) of the farmers in terms of grain quality.

Pest and disease resistance

MTU 1001 and Samba Mahsuri was liked best by the farmers in terms disease and pest resistance. These 2 varieties were way ahead in the resistance trait than the other 6 varieties tried alongside.

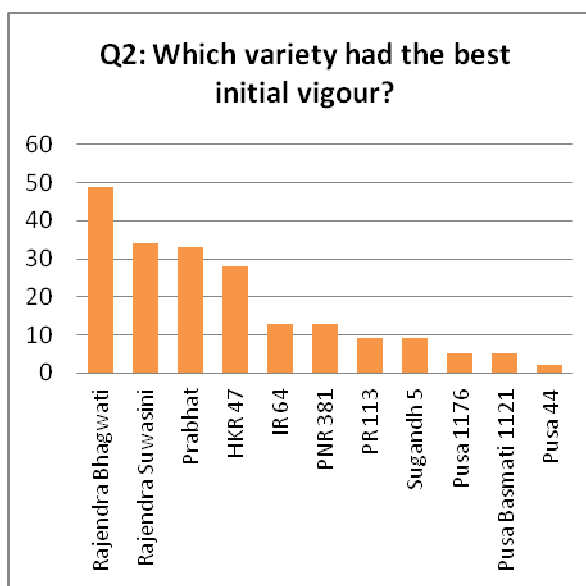
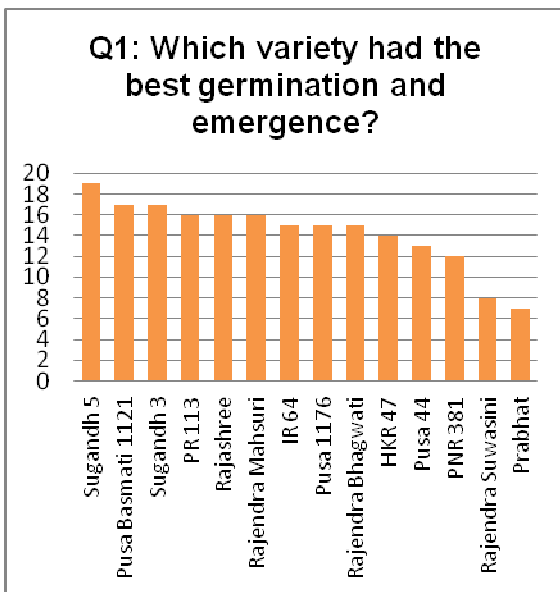
Grain yield

IR 36 and Sampada topped the farmers preference in terms of grain yield (41 out of 125 ranking as best). However MTU 1010 and MTU 1001 came close by with 36 farmers out of 125 ranking them as best.

The variety that farmers want to repeat next year

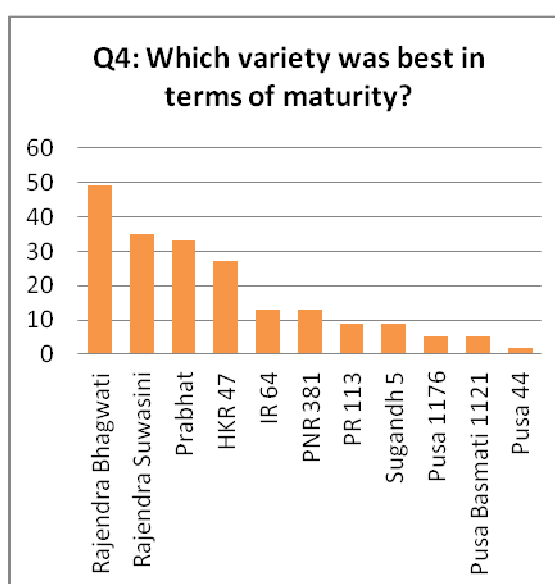
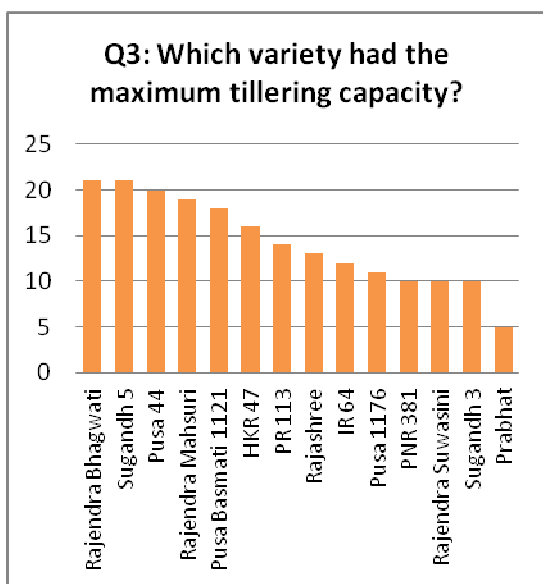
The farmers wanted to repeat MTU 1001 (21/125) and Akshaydhan (18/125) the next season as these two varieties were marked best by about 60% of the farmers.

In the second set of trials in Muzaffarpur district with 200 farmers, the responses are expressed in the graphical form below.

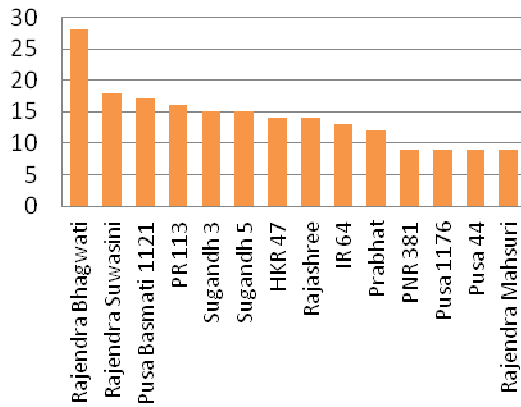


Germination and Initial vigor

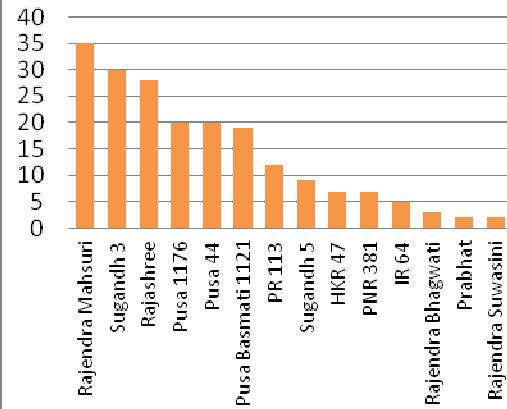
In terms of germination, Sugandh 5, Pusa Basmati, Sugandh 3, PR 113 and Rajendra Mahsuri was liked and ranked best by 50% of the farmers. The data also shows that in this trait, prabhat and R Suwasini was not much preferred by the farmers. Rajendra Bhagwati was the farmers top choice in terms of initial vigor followed by Rajendra Suwasini, Prabhat and HKR 47



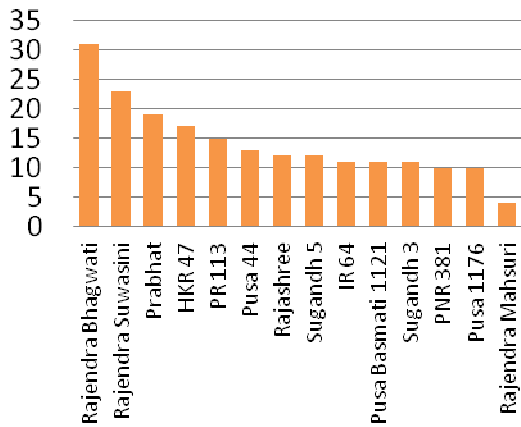
Q5: Which variety had the best seed quality (color, aroma, taste) ?



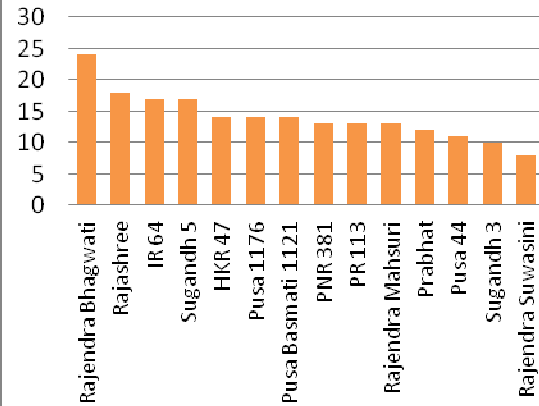
Q6: Which variety was most resistant to pests and diseases?



Q7: Which variety had the maximum grain yield?



Q8: Which variety will you rank overall best plant quality?



Q9: Which variety you would like to plant again in the next season?

