

Effect of 'P' priming on the yield of ricebean intercropped with maize

- **Priming**
 - **Water**
 - Improvement in emergence under drought
 - **Nutrients**
 - Improvement in yield and nutrients content
- **Promising results in wheat and chickpea**
 - **Water priming and Zn**

- **Ricebean**
 - **A rainfed crop**
 - **Water priming to see the effect on emergence**
- **Legume crop**
 - **P effects**

Treatments

■ No P application to maize	X	■ Sole maize
■ Recommended P application to maize		■ +rice bean (seed not primed)
		■ + rice bean (primed with water)
		■ + rice bean (primed with 0.1 % P)
		■ + rice bean (primed with 1 % P)

Treatments details

- **No P application - Sole maize**
- **No P application to maize + rice bean (seed not primed)**
- **No P application to maize + rice bean (primed with water)**
- **No P application to maize + rice bean (primed with 0.1 % P)**
- **No P application to maize + rice bean (primed with 1 % P)**
- **Recommended P application to sole maize**
- **Recommended P application to maize + rice bean (seed not primed)**
- **Recommended P application to maize + rice bean (primed with water)**
- **Recommended P application to maize + rice bean (primed with 0.1 % P)**
- **Recommended P application to maize + rice bean (primed with 1 % P)**

• **Design** = Randomized block design

• **Replications** = 3

• **Varieties** : Maize= Giriza , Ricebean= BRS-II

- **Priming**
 - Water soaking
 - 'P' priming with KH_2PO_4

- **Sowing**
 - Maize + ricebean was sown in 1:1 additive series

Observations

Maize

- Plant height
- Cob length
- Number of grains per cob
- Test weight
- Yield

Ricebean

- Emergence count
- No. of pods per plant
- Pod length
- Test weight
- Grain yield

Nutrient contents

Equivalent yield

Results

Emergence of ricebean

- No significant effect on total emergence count of ricebean was observed, however priming resulted in 2-3 days early emergence of ricebean

Effect of seed priming of ricebean intercropped with maize (mean of two years)

Treatments	Maize yield (t/ha)	Ricebean yield (t/ha)	Total maize equivalent yield (t/ha)
No P application - Sole maize	1.19	-	1.19
No P application to maize + rice bean (seed not primed)	1.29	0.37	3.00
No P application to maize + rice bean (primed with water)	1.36	0.40	3.21
No P application to maize + rice bean (primed with 0.1 % P)	1.36	0.47	3.53
No P application to maize + rice bean (primed with 1 % P)	1.33	0.60	4.10
Recommended P application to sole maize	1.85	-	1.85
Recommended P application to maize + rice bean (seed not primed)	2.01	0.56	4.59
Recommended P application to maize + rice bean (primed with water)	2.05	0.67	5.14
Recommended P application to maize + rice bean (primed with 0.1 % P)	2.03	0.88	6.09
Recommended P application to maize + rice bean (primed with 1 % P)	2.16	0.85	6.08
CD 5%	0.13	0.19	-

Maize INR 6500/t, Ricebean INR 30000/t

Effect of treatment on ricebean yield (t/ha)

	Ricebean yield (t/ha)				
	NO Priming	Water priming	P 0.1% priming	P 1% priming	Mean
P₀	0.37	0.40	0.47	0.60	0.37
P	0.56	0.67	0.88	0.85	0.59
Mean	0.47	0.54	0.68	0.73	
% increase	-	15.05	39.25	38.52	

Effect of treatment on maize yield (t/ha)

	Maize grain yield (t/ha)					Mean
	With out ricebean	+ ricebean				
		N0 Priming	Water priming	P 0.1% priming	P 1% priming	
P₀	1.19	1.29	1.36	1.35	1.33	1.30
P	1.85	2.01	2.05	2.03	2.16	2.02
Mean	1.52	1.65	1.71	1.69	1.75	
Increase (t/ha)	-	0.13	0.19	0.17	0.23	
% increase		8.6	11.2	10.0	13.3	

Effect of treatment on maize equivalent yield (t/ha)

	Maize equivalent yield (t/ha)					
	No ricebean	With ricebean				
		N0 Priming	Water priming	P 0.1% priming	P 1% priming	Mean
P₀	1.19	3.00	3.21	3.53	4.10	3.01
P	1.85	4.59	5.14	6.09	6.08	4.75
Mean	1.52	3.80	4.18	4.81	5.09	

Thanks



Effect of seed priming of ricebean intercropped with maize

	Treatments	Maize yield (t/ha)			Ricebean yield (t/ha)			Total maize equivalent yield (t/ha)
		2007	2008	Mean	2007	2008	Mean	
1	No P application - Sole maize	1.23	1.14	1.19	-	-	-	1.19
2	No P application to maize + rice bean (seed not primed)	1.35	1.22	1.29	0.42	0.31	0.37	3.00
3	No P application to maize + rice bean (primed with water)	1.40	1.31	1.36	0.38	0.41	0.40	3.21
4	No P application to maize + rice bean (primed with 0.1 % P)	1.35	1.36	1.36	0.46	0.48	0.47	3.53
5	No P application to maize + rice bean (primed with 1 % P)	1.29	1.37	1.33	0.52	0.67	0.60	4.10
6	Recommended P application to sole maize	1.83	1.87	1.85	-	-	-	1.85
7	Recommended P application to maize + rice bean (seed not primed)	1.96	2.05	2.01	0.52	0.60	0.56	4.59
8	Recommended P application to maize + rice bean (primed with water)	2.06	2.03	2.05	0.62	0.71	0.67	5.14
9	Recommended P application to maize + rice bean (primed with 0.1 % P)	1.99	2.06	2.03	0.72	1.04	0.88	6.09
10	Recommended P application to maize + rice bean (primed with 1 % P)	2.12	2.20	2.16	0.68	1.02	0.85	6.08

Prices

Maize INR 6500/t, Ricebean INR 30000/t

- ? Estimates of heritability, genetic advance & correlation between grain yield and its component in ricebean
- ?Some article in “LEISA- India” in relation to farmers participatory activities like mother and baby trials & ricebean demonstration (ricebean yield, economics, family requirement/sufficiency? etc)
 - Family pulse consumption; production/purchase; ricebean production; saving/income

GPS of the ricebean germplasm explored sites in HP and Uttarakhand:

Sr. no.	Place	Altitude (ft)	Latitude	Longitude
Uttarakhand				
	Ranipokhri	2800	30°11'00''	78 °13'00''
	Koti	5500	30 °27'06''	77 °56'29''
	Dehradun	2100	30 °19'N	78 °04'E
	Tehri	4600	30 °20'N	78 °53'E
	Thano	do	22 °34'N	71 °11'E
	Gaja	do	30 °38'N	78 °48'E
	Kandikhal	do	32 °12'N	76 °53'E
	Srinagar	2800	30.22 ^N	74° 50' E
	Trilokpur	1620	32 °17'60''N	75 °54'0E
	Narsoda	1450	34° 5' N	74° 50' E
	Hindolkhal	4200	32° 12'N	76° 53'E
	Bergani	4100	30 °20'N	78 °53'E
	Vikasnagar	1482	30.47'N	77.78E
Himachal Pradesh				
	Ladruhin	2400	31 °58'60''N	76 °46'0''E
	Chibro	do	do	do
	Deshera	Do	Do	do
	Rangarvas	do	do	do
	Shiunta			
	Arki (Solan)	2500	30° 55 N	77 ° 7E
	Palampur	1219	32 °10' N	76 ° 30' E

Range

Altitude = 1482 - 5500 ft
 Latitude = 22.34 N – 34.50 N
 Longitude = 71.11 E – 78.54 E