

Final Report
On

**Evaluation of different organic products in
moong (green gram) crop**

Summer
2017 and 2018

Submitted to

**Pro G Agro Private Limited,
GIDC - Savli,
Vadodara, Gujarat**

Submitted by

**DEPARTMENT OF AGRONOMY
B. A. COLLEGE OF AGRICULTURE
ANAND AGRICULTURAL UNIVERSITY
ANAND - 388 110**

Evaluation of different organic products in summer moong (green gram) crop

1. Title of the scheme
Evaluation of different organic products in summer moong (green gram) crop
2. Location
Department of Agronomy
B. A. College of Agriculture
Anand Agricultural University, Anand
 - a) Name and address of the University Authority
Director of Research & Dean
Faculty of P.G. Studies
Anand Agricultural University, Anand
 - b) Name and address of the Unit Head
Principal
B. A. College of Agriculture
Anand Agricultural University, Anand
 - c) Actual location where the work was carried out
Agronomy Farm
B. A. College of Agriculture
Anand Agricultural University, Anand
3. Financing Agency
**Pro G Agro Private Limited,
GIDC – Savali, Vadodara, Gujarat**
4. Project In charge
Dr. M. V. Patel, Professor and Head
Department of Agronomy
B. A. College of Agriculture
Anand Agricultural University, Anand
 - Principal Investigator
Dr. S. N. Shah, Associate Professor
Department of Agronomy
B. A. College of Agriculture
Anand Agricultural University, Anand
 - Co- Investigator
Dr. H. K. Patel, Assistant Professor
Department of Agronomy
B. A. College of Agriculture
Anand Agricultural University, Anand

Prof. A. P. Patel, Assistant Professor
Department of Agronomy
B. A. College of Agriculture
Anand Agricultural University, Anand

S. N. Shah

Treatment T₅ (Vanvruddhi Granules@ 20 kg ha⁻¹ alongwith 50 % RDF) gave significantly higher number of seeds pods⁻¹ (13.08) during the year 2017 as well as in pooled results (13.72), which was at par with treatments of T₃, T₄, T₆ and T₁₀ during the year 2017 and treatments of T₄ and T₁₀ in pooled analysis.

SEED INDEX

Seed index (100 seed weight) as influenced by different treatments during the years 2017, 2018 and in pooled results are presented in Tables 11 indicated that different treatments have significant influence on seed index during the year 2018 and in pooled results.

Table 11: Effect of various treatments on seed index of greengram

Treatment	100- seed weight (g)		
	2017	2018	Pooled
T ₁ - Vanvruddhi IBNM@ 12.5 kg ha ⁻¹	6.51	6.27	6.39
T ₂ - Vanvruddhi soil @ 12.5 kg ha ⁻¹ along with 100 % RDF	6.52	6.37	6.44
T ₃ - Vanvruddhi Granules@ 20 kg ha ⁻¹ along with 100 % RDF	6.69	6.81	6.75
T ₄ - Vanvruddhi soil @ 12.5 kg ha ⁻¹ along with 50 % RDF	6.60	6.95	6.78
T ₅ - Vanvruddhi Granules@ 20 kg ha ⁻¹ along with 50 % RDF	6.96	7.11	7.04
T ₆ - Cow Urine + Vanvruddhi Wettable Powder (1250 g mixed with 12.5 l Cow Urine)	6.47	6.37	6.42
T ₇ - Pro-G Gold@ 625 ml ha ⁻¹	6.52	6.74	6.63
T ₈ - NOL + IBPM + Cow Urine (1000 ml + 250 ml + 12.5 l)	6.41	6.58	6.50
T ₉ - RDF along with bio-fertilizers (20-40-00 kg NPK ha ⁻¹ + 5 ml/kg)	6.64	6.71	6.68
T ₁₀ - RDF Only (20-40-00 kg NPK ha ⁻¹)	6.59	6.76	6.67
S. Em. ±	0.15	0.12	0.09
C.D. (P=0.05)	NS	0.34	0.27
C.V.%	4.49	3.55	4.04

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Significantly higher seed index (7.11 g, 7.04 g) was recorded in treatment T₅ (Vanvruddhi Granules@ 20 kg ha⁻¹ alongwith 50 % RDF) during the year 2018 as well as in pooled results, which was at par with treatment T₃ (Vanvruddhi Granules@ 20 kg ha⁻¹ alongwith 100 % RDF) and T₄ (Vanvruddhi soil @ 12.5 kg ha⁻¹ along with 50 % RDF) during the year 2018 except pooled analysis. Non significant influence of treatments on seed index was observed during the first year 2017.

SEED YIELD

Results presented in Table 12 revealed that seed yield of green gram was affected significantly due to different treatments during the year 2017, 2018 and in pooled analysis.

Table 12: Effect of various treatments on seed yield of greengram

Treatment	Seed yield (kg ha ⁻¹)		
	2017	2018	Pooled
T ₁ - Vanvruddhi IBNM@ 12.5 kg ha ⁻¹	930	893	912
T ₂ - Vanvruddhi soil @ 12.5 kg ha ⁻¹ along with 100 % RDF	944	986	965
T ₃ - Vanvruddhi Granules@ 20 kg ha ⁻¹ along with 100 % RDF	1047	1012	1029
T ₄ - Vanvruddhi soil @ 12.5 kg ha ⁻¹ along with 50 % RDF	999	1054	1026
T ₅ - Vanvruddhi Granules@ 20 kg ha ⁻¹ along with 50 % RDF	1136	1143	1139
T ₆ - Cow Urine + Vanvruddhi Wettable Powder (1250 g mixed with 12.5 l Cow Urine)	913	974	944
T ₇ - Pro-G Gold@ 625 ml ha ⁻¹	973	986	979
T ₈ - NOL + IBPM + Cow Urine (1000 ml + 250 ml + 12.5 l)	788	925	857
T ₉ - RDF along with bio-fertilizers (20-40-00 kg NPK ha ⁻¹ + 5 ml/kg)	1020	1060	1040
T ₁₀ - RDF Only (20-40-00 kg NPK ha ⁻¹)	992	1006	999
S. Em. ±	55	43	34
C.D. (P=0.05)	158	126	95
C.V.%	11.19	8.66	9.97

Table 15: Effect of various treatments on protein content in seed of greengram

Treatment	Seed Protein Content (%)	
T ₁ - Vanvruddhi IBNM@ 12.5 kg ha ⁻¹	19.39	
T ₂ - Vanvruddhi soil @ 12.5 kg ha ⁻¹ along with 100 % RDF	21.34	
T ₃ - Vanvruddhi Granules@ 20 kg ha ⁻¹ along with 100 % RDF	20.64	
T ₄ - Vanvruddhi soil @ 12.5 kg ha ⁻¹ along with 50 % RDF	18.42	
T ₅ - Vanvruddhi Granules@ 20 kg ha ⁻¹ along with 50 % RDF	19.64	
T ₆ - Cow Urine + Vanvruddhi Wettable Powder (1250 g mixed with 12.5 l Cow Urine)	20.39	
T ₇ - Pro-G Gold@ 625 ml ha ⁻¹	21.25	
T ₈ - NOL + IBPM + Cow Urine (1000 ml + 250 ml + 12.5 l)	20.00	
T ₉ - RDF along with bio-fertilizers (20-40-00 kg NPK ha ⁻¹ + 5 ml/kg)	19.55	
T ₁₀ - RDF Only (20-40-00 kg NPK ha ⁻¹)	20.13	
	S. Em. ±	0.73
	C.D. (P=0.05)	NS
	C.V.%	7.23

SOIL STATUS AFTER HARVEST OF GREEN GRAM

The results of soil available nutrients status viz., organic carbon (%), available P₂O₅ (kg ha⁻¹), available K₂O, EC (dS m⁻¹) and pH after harvest of greengram crop are presented in Table 16.

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Table 16: Effect of various treatments on soil fertility after harvest of greengram (after 2 years)

Treatment	EC (1:2.5) dSm ⁻¹	pH (1:2.5)	OC (%)	Av. P ₂ O ₅ (kg ha ⁻¹)	Av. K ₂ O (kg ha ⁻¹)
T ₁ - Vanvruddhi IBNM@ 12.5 kg ha ⁻¹	0.28	8.19	0.58	38	217
T ₂ - Vanvruddhi soil @ 12.5 kg ha ⁻¹ along with 100 % RDF	0.22	8.07	0.43	32	268
T ₃ - Vanvruddhi Granules@ 20 kg ha ⁻¹ along with 100 % RDF	0.24	8.21	0.53	31	260
T ₄ - Vanvruddhi soil @ 12.5 kg ha ⁻¹ along with 50 % RDF	0.30	8.09	0.48	27	225
T ₅ - Vanvruddhi Granules@ 20 kg ha ⁻¹ along with 50 % RDF	0.26	8.19	0.55	35	249
T ₆ - Cow Urine + Vanvruddhi Wettable Powder (1250 g mixed with 12.5 l Cow Urine)	0.33	8.14	0.37	44	239
T ₇ - Pro-G Gold@ 625 ml ha ⁻¹	0.26	8.26	0.51	37	273
T ₈ - NOL + IBPM + Cow Urine (1000 ml + 250 ml + 12.5 l)	0.31	8.11	0.44	34	228
T ₉ - RDF along with bio-fertilizers (20-40-00 kg NPK ha ⁻¹ + 5 ml/kg)	0.25	8.09	0.62	32	263
T ₁₀ - RDF Only (20-40-00 kg NPK ha ⁻¹)	0.27	8.36	0.44	37	230
S. Em. ±	0.01	0.17	0.01	0.93	3.86
C.D. (P=0.05)	0.02	NS	0.03	2.70	11.20
C.V.%	5.53	4.20	3.81	5.36	3.15

The soil pH was unaffected due to different treatments. Treatment T₆ (Cow Urine + Vanvruddhi Wettable Powder, 1250 g mixed with 12.5 l Cow Urine) recorded significantly higher value of EC and it was at par with treatment T₈ (NOL + IBPM + Cow Urine, 1000 ml + 250 ml + 12.5 l).

The highest soil organic carbon (%) was observed in the treatment T₉ (RDF along with bio-fertilizers, 20-40-00 kg NPK ha⁻¹ + 5 ml kg⁻¹) followed by treatment T₁ (Vanvruddhi IBNM@ 12.5 kg ha⁻¹). Significantly the highest available P₂O₅ was recorded in the treatment T₈ (Cow Urine + Vanvruddhi Wettable Powder, 1250 g mixed with 12.5 l Cow Urine) followed by treatment T₁ (Vanvruddhi IBNM@ 12.5 kg ha⁻¹). Treatment T₇ recorded significantly higher available K₂O and remained at par with the treatments of T₂ and T₉.

SUMMARY

Experiment was conducted at Agronomy Farm, B. A. College of Agriculture, Anand Agricultural University, Anand, during summer 2017 and 2018 to study the effect of different organic products on the growth, yield attributes and yield as well as quality of green gram along with recommended dose of fertilizers.

On the basis of the two years data from experiments it was found that treatment T₅ (Vanvruddhi Granules @ 20 kg ha⁻¹ along with 50 % RDF) was more effective in recording higher seed (1139 kg ha⁻¹) and haulm (1865 kg ha⁻¹) yields of green gram. In the treatments of only organic application without chemical fertilizer, treatment T₇ (Pro-G Gold@ 625 ml ha⁻¹) recorded 979 kg ha⁻¹ seed yield of greengram and remained at par with treatment of T₆ (Cow Urine + Vanvruddhi Wettable Powder, 1250 g mixed with 12.5 l Cow Urine) and T₁ (Vanvruddhi IBNM@ 12.5). Moreover, treatment T₁₀ (Recommended dose of fertilizer, 20-40-00 kg ha⁻¹) is as good as treatments of T₁, T₂, T₃, T₄, T₆, T₇, and T₉ as it remained at par with this treatments.

Most of the treatments are compatible to each other in recording yields and no wide differences observed. As far as quality is concerned, protein content in green gram seed is not affected significantly by different treatments. This indicated that all the treatments were equally effective.

As far as soil fertility status is concerned, the highest soil organic carbon (%) was observed in the treatment T₉ (RDF along with bio-fertilizers, 20-40-00 kg NPK ha⁻¹ + 5 ml kg⁻¹) followed by treatment T₁ (Vanvrudhhi IBNM @ 12.5 kg ha⁻¹). Significantly the highest available P₂O₅ was recorded in the treatment T₈ (Cow Urine + Vanvrudhhi Wetttable Powder, 1250 g mixed with 12.5 l Cow Urine) followed by treatment T₁ (Vanvrudhhi IBNM @ 12.5 kg ha⁻¹). Treatment T₇ recorded significantly higher available K₂O and remained at par with the treatments of T₂ and T₉.

CERTIFICATE

This is to certify that the work report containing 29 pages is true and authentic report of the project entitled "Evaluation of different organic products in moong (green gram) crop".

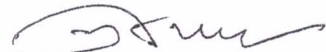
Principal Investigator



(S. N. Shah)

Associate Professor
Department of Agronomy
B. A. College of Agriculture
Anand Agricultural University
Anand-388 110

Project In charge



(M. V. Patel)

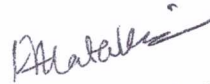
Associate Director of Research
Anand Agricultural University
Anand-388 110

Unit Head



(K. P. Patel)

Principal and Dean
B. A. College of Agriculture
Anand Agricultural University
Anand-388 110



Director of Research &
Dean P.G. Studies
Anand Agricultural University
Anand