

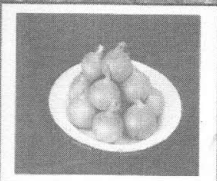
(For office use only)



**A Report
on**

**Bio-efficacy of organic product 'Orgishakti' on
growth, yield and quality of onion cv. N- 2-4-1.**

**Sponsored by
M/s. Secure Organic Pvt. Ltd.,
Mumbai**



**ONION BREEDER
SCHEME FOR RESEARCH ON ONION STORAGE,
DEPARTMENT OF HORTICULTURE,
MAHATMA PHULE KRISHI VIDYAPEETH
RAHURI-413 722, DIST.- AHMEDNAGAR (MS)
2013-14**

(For office use only)



**MAHATMA PHULE KRISHI VIDYAPEETH
RAHURI 413 722 (MAHARASHTRA)**

A REPORT ON

**Bio-efficacy of organic product 'Orgishakti' on growth, yield
and quality of onion cv. N -2-4-1**

Sponsored by

**M/s Secure Organic Pvt Ltd.,
Mumbai.**

Conducted and reported by

**Onion Breeder
Scheme for Research on Onion Storage,
Department of Horticulture,
MPKV, Rahuri.**

2013-14

**SCHEME FOR RESEACH ON ONION STORAGE,
DEPARTMENT OF HORTICULTURE,
MAHATMA PHULE KRISHI VIDYAPEETH,
RAHURI, DIST.AHMEDNAGAR.**

REPORT ON TESTING OF PRODUCT

Title of the project : Product testing on payment basis.

Title of the experiment : Bio-efficacy of organic product 'Orgishakti' on growth, yield and quality of onion cv. N- 2-4-1.

Objectives : To evaluate the effect of organic product Orgishakti on growth, yield and quality of onion.

Name of the firm : M/s Secure Organic Pvt Ltd., Mumbai.

Name of the product : Orgishakti.

Name of research workers : Dr. S. G. Bhalekar , Miss. K. K. Bhangre and Shri. S.U.Chalak

Experimental details

Location : Scheme for Research on Onion Storage, Department of Horticulture, MPKV, Rahuri.

Season and year : Rabi - 2013 - 14

Design : Randomized Block Design (RBD)

Replications : Three

No. of treatments : Eleven

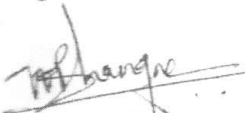
Plot size : 3.0 x 2.0 m²

Spacing : 15.0 x 10.0 cm²


Date of seed sowing : 01/11/2013

Date of transplanting : 31/12/2013

Date of harvesting : 10/05/ 2014


Jr. Res. Asstt.
Onion Storage Scheme
M.P.K.V., Rahuri.

1


Onion Breeder
Onion Storage Scheme
M. P. K. V., Rahuri

Treatment details: - Eleven treatments

T ₁	Untreated control
T ₂	Orgishakti foliar Spray @ 1250 ml/ha + RDF
T ₃	Orgishakti foliar Spray @ 2500 ml/ha + RDF
T ₄	Orgishakti foliar Spray @ 3750 ml/ha + RDF
T ₅	Orgishakti foliar Spray @ 1250 ml/ha + 75 % RDF
T ₆	Orgishakti foliar Spray @ 2500 ml/ha + 75 % RDF
T ₇	Orgishakti foliar Spray @ 3750 ml/ha + 75 % RDF
T ₈	Orgishakti soil application @ 7500 ml/ha + RDF
T ₉	Orgishakti soil application @ 10000 ml/ha + RDF
T ₁₀	Orgishakti soil application @ 12500 ml/ha + RDF
T ₁₁	Recommended dose of fertilizer (FYM 20 t/ha, 100:50 50 NPK kg/ha).

* Foliar sprays at 45, 60 and 75 days after transplanting.

Methodology : The seedlings were planted on flat beds of size 3.0 x 2.0 m with spacing 15 x 10 cm. The fertilizers are applied as per the given treatments in protocol. After onion transplanting the three sprays were given as per treatments with specific concentration at 45, 60 and 75 days after transplanting. The soil application was done at the time of transplanting of seedlings.

Dates of spraying : Ist spray – 15th Feb. 2014

IInd spray – 28th Feb. 2014

IIIrd spray – 15th Feb. 2014

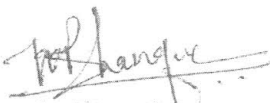
Water volume : 500 lit/ha.

RDF : Recommended dose of fertilizer as 100:50:50 NPK kg/ha + FYM – 20 t/ha was given as per the treatments.

Observations recorded

- | | | | |
|---|--------------------------------------|----|-------------------|
| 1 | Av. plant height (cm) | 8 | Yield t/ha. |
| 2 | Av. no. of leaves/ plant | 9 | 'A' grade bulbs % |
| 3 | Av. neck thickness (cm) | 10 | 'B' grade bulbs % |
| 4 | Av. polar diameter of bulb (cm) | 11 | 'C' grade bulbs % |
| 5 | Av. equatorial diameter of bulb (cm) | 12 | Twin % |
| 6 | Av. bulb weight (g) | 13 | Bolter % |
| 7 | Yield kg/plot | 14 | TSS (°Brix) |

2


Jr. Res. Asstt.
Onion Storage Scheme
M.P.K.V., Rahuri.


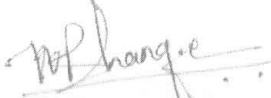

Onion Breeder
Onion Storage Scheme
M. P. K. V., Rahuri


Table 1: Bio-efficacy of organic product Orgishakti on growth, yield and quality of onion cv. N- 2-4-1 (Rabi- 2013-14).

Treatments	Total yield		Av. plant height (cm)	Av. no. of leaves /plant	Av. neck thick. (cm)	Av. Equ. dia. (cm)	Av. polar dia. (cm)	Av. weight of bulb (g)	AGB %	BGB %	CGB %	Twin %	Bolter %	TSS (°Brix)
	kg / plot	t/ha												
T ₁ - Untreated control	12.43	20.71	49.83	8.21	1.04	4.50	3.80	50.80	7.99	34.18	54.69	2.50	0.64	12.31
T ₂ - Foliar Spray @ 1250 ml/ha + RDF	23.49	39.15	61.45	10.83	1.29	5.44	4.80	75.13	25.56	58.31	12.03	3.50	0.60	12.44
T ₃ - Foliar Spray @ 2500 ml/ha + RDF	21.57	35.95	59.10	10.66	1.35	5.43	4.30	69.06	20.79	48.72	22.81	5.79	1.89	11.73
T ₄ - Foliar Spray @ 3750 ml/ha + RDF	21.54	35.91	57.91	10.65	1.37	5.38	4.28	68.08	20.09	49.47	24.01	5.46	0.97	12.82
T ₅ - Foliar Spray @ 1250 ml/ha + 75 % RDF	22.83	38.06	61.08	10.66	1.10	5.42	4.37	69.48	23.50	58.57	14.02	3.26	0.65	12.44
T ₆ - Foliar Spray @ 2500 ml/ha + 75 % RDF	21.45	35.76	62.11	10.64	1.28	5.36	4.30	68.91	17.42	57.56	18.39	5.18	1.45	12.36
T ₇ - Foliar Spray @ 3750 ml/ha + 75 % RDF	22.75	37.92	61.24	10.66	1.25	5.38	4.33	71.24	18.63	53.31	20.32	5.46	2.28	12.67
T ₈ - Soil application @ 7500 ml/ha + RDF	20.87	34.79	59.24	10.60	1.42	5.35	4.24	66.50	13.43	50.58	28.44	6.58	0.97	12.67
T ₉ - Soil application @ 10000 ml/ha + RDF	20.18	33.65	63.24	9.74	1.48	5.40	4.32	69.55	12.66	55.02	24.07	6.80	1.45	12.80
T ₁₀ - Soil application @ 12500 ml/ha + RDF	21.18	35.31	62.00	10.68	1.44	5.20	4.28	64.63	15.91	53.23	22.82	7.76	0.28	12.60
T ₁₁ - Recommended dose of fertilizer (FYM 20 t/ha, 100:50 50 NPK kg/ha).	20.54	34.23	59.60	10.61	1.31	5.32	4.38	68.54	22.80	47.98	22.65	5.60	0.97	12.70
SE±	0.96	1.60	1.89	0.48	0.06	0.13	0.11	3.81	-	-	-	-	--	0.44
CD at 5 %	2.84	4.73	5.87	1.41	0.18	0.38	0.32	11.26	-	-	-	-	-	NS

* AGB – A grade bulbs, BGB - B grade bulbs, CGB- C grade bulbs.


Jr. Res. Asett.
 Onion Storage Scheme
 M.P.K.V., Rahuri.

3


Onion Breeder
 Onion Storage Scheme
 M.P.K.V., Rahuri

Results

Plant growth

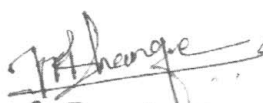
The data presented in Table-1, revealed that the the treatment differences for morphological characters viz ; plant height , number of leaves per plant and neck thickness were found to be significant. The significantly maximum plant height (63.24 cm) was noticed in the treatment T₉ - Orgishakti soil application @ 10,000 ml/ha + recommended dose of fertilizers. However, it was at par with all the treatments except the treatment T₁ – untreated control (49.83 cm).


The treatment T₂ – Orgishakti foliar spray @ 1250 ml/ha + recommended dose of fertilizers recorded significantly maximum number of leaves (10.83) which was at par with all the treatments, except T₁ – untreated control in which minimum number of leaves (8.21) were observed. The treatment T₁ – untreated control showed minimum neck thickness (1.04 cm) which was at par with the treatment T₅ - Orgishakti foliar spray @ 1250 ml/ha + 75 % recommended dose of fertilizer (1.10 cm).

In onion bulb growth characters, the average equatorial diameter (5.44 cm) and polar diameter (4.80 cm) were found significantly maximum in the treatment T₂ – Orgishakti foliar spray @ 1250 ml/ha + recommended dose of fertilizers. However, significantly minimum equatorial diameter (4.50 cm) and polar diameter (3.80 cm) were found in the treatment T₁ – untreated control.

Yield

The yield data presented in Table-1, showed significant treatment differences for total bulb yield. The significantly maximum total bulb yield (39.15 t/ha) was recorded in the treatment T₂ - Orgishakti foliar spray @ 1250 ml/ha at 45, 60 and 75 DAT + recommended dose of fertilizers, which was at par with all the treatments except T₁ - untreated control (20.71 t/ha), T₉- Orgishakti soil application @ 1000 ml/ha + recommended dose of fertilizers (33.65 t/ha) and T₁₁ - recommended dose of fertilizers (34.23 t/ha).


Jr. Res. Asstt.
Onion Storage Scheme
M.P.K.V., Rahuri.


Onion Breeder
Onion Storage Scheme
M. P. K. V., Rahuri

The treatment T₅- Orgishakti foliar spray @ 1250 ml/ha + 75 % recommended dose of fertilizer also recorded maximum bulb yield (38.06 t/ha) which was at par with all the treatments except, T₁ - untreated control (20.71 t/ha) which records significantly lowest yield.

The maximum percentage of A grade bulbs (25.56 %) was recorded in the treatment T₂ - Orgishakti foliar spray @ 1250 ml/ha + recommended dose of fertilizers, followed by the treatment T₅- Orgishakti foliar spray @ 1250 ml/ha + 75 % recommended dose of fertilizer (23.50 %). The treatment T₁ - untreated control recorded minimum percentage of A grade bulbs (7.99 %).

The maximum percentage of B grade bulbs (58.57 % and 58.31 %) were recorded in the treatment T₅ - Orgishakti foliar spray @ 1250 ml/ha + 75 % recommended dose of fertilizers and T₂ - Orgishakti foliar spray @ 1250 ml/ha + recommended dose of fertilizer respectively.


In case of C grade bulbs the minimum percentage was recorded in the treatment T₂ - Orgishakti foliar spray @ 1250 ml/ha + recommended dose of fertilizers (12.03 %). The maximum percentage of C grade (54.69 %) bulbs was recorded in the treatment T₁ - untreated control.


Quality

The treatment differences were non - significant for TSS. The maximum TSS (12.82 %) was observed in the treatment T₄- Orgishakti foliar spray @ 3750 ml/ha + recommended dose of fertilizers followed by T₉ (12.80 %). The lowest percentage of TSS (11.73 %) was observed in treatment T₃ - Orgishakti foliar spray @ 2500 ml/ha + recommended dose of fertilizers.

Conclusion

In the studies on Bio-efficacy of organic product 'Orgishakti' on growth, yield and quality of onion cv. N- 2-4-1, the foliar application @ 1250 ml/ha of this product at 45,60 and 75 days after transplanting was found beneficial to increase the bulb yield of onion. The treatment T₂ - Orgishakti foliar spray @ 1250 ml/ha at 45,60 and 75 DAT + recommended dose of fertilizers recorded significantly


Jr. Res. Asstt.
Onion Storage Scheme
M.P.K.V., Rahuri.


Onion Breeder
Onion Storage Scheme
M. P. K. V., Rahuri

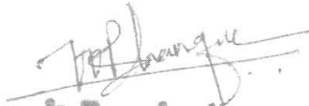
highest yield (39.15 t/ha). However, it was on par with the treatment T₅- Orgishakti foliar spray @ 1250 ml/ha + 75 % recommended dose of fertilizers (38.06 t/ha). Both these two treatments were found beneficial for increasing onion bulb yield in *rabi* season.


Specific technical comments

In the studies on Bio-efficacy of organic product 'Orgishakti' in Onion the foliar application @ 1250 ml/ha of this product at 45,60 and 75 days after transplanting were beneficial than the soil application. The lower dose of 'Orgishakti' @ 1250 ml/ha + RDF and with 75 % RDF were beneficial than higher dose of application.

The treatment T₂ - Orgishakti foliar spray @ 1250 ml/ha at 45,60 and 75 DAT + recommended dose of fertilizers recorded significantly highest yield (39.15 t/ha), which is 14.37 % more than the recommended practice. However, it was on par with the treatment T₅- Orgishakti foliar spray @ 1250 ml/ha + 75 % recommended dose of fertilizer (38.06 t/ha), which is 11.15 % more than the recommended practice (T₁₁) but on par with each other.

Both these two treatments T₂ - Orgishakti foliar spray @ 1250 ml/ha at 45,60 and 75 DAT + recommended dose of fertilizers and T₅- Orgishakti foliar spray @ 1250 ml/ha + 75 % recommended dose of fertilizer were found beneficial for increasing onion bulb yield in *rabi* season.


Jr. Res. Asstt.
Onion Storage Scheme
M.P.K.V., Rahuri.


Onion Breeder
Onion Storage Scheme
M.P.K.V., Rahuri


Head
Department of Horticulture
Mahatma Phule Krishi Vidyapeeth
Rahuri, Dist. Ahmednagar.