



PRODUCT TESTING REPORT

of

Application of slurry through Deepjyoti jivamrut slurry filter on emitter discharge and emission uniformity of drip irrigation system.



Sponsored by

M/s. Deepjyoti Fabcon, Nashik (MS).

Conducted by

**INTERFACULTY DEPARTMENT
OF IRRIGATION WATER MANAGEMENT,
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2026

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Report of Product Testing on “Application of slurry through Deepjyoti jivamrut slurry filter on emitter discharge and emission uniformity of drip irrigation system.”		
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2.	a) Name of Investigators	: Dr. D. D. Khedkar, Assistant Professor of IDE Dr. S. K. Ghodke, Assistant Professor of Soil Science Dr. V. S. Patil, Head, Interfaculty Department of IWM
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3.	Name of the Company	: M/s. Deepjyoti Fabcon, At/Post- Pimpri Sayyad, Tal. Nashik , Dist. Nashik - 422003.
4.	Product	: Deepjyoti jivamrut slurry filter
5.	Crop and Season	: -Nil-
6.	Type of study	: Field
7.	Pest/Disease/weed/testing of seed/etc	: -Nil-
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1. Title: Application of slurry through Deepjyoti jivamrut slurry filter on emitter discharge and emission uniformity of drip irrigation system.

2. Objectives:

1. To study the emitter discharge with injecting slurry from Deepjyoti jivamrut slurry filter with and without lateral flushing.
2. To study the emission uniformity with injecting slurry from Deepjyoti jivamrut slurry filter with and without lateral flushing.

3. Duration of testing: 2025-26

4. Experimental Details:

Crop and variety	: Nil
Gross Plot size	: 9.60 m x 45 m
Treatments	: Two
Irrigation	: Application of water with filtered slurry through Deepjyoti jivamrut slurry filter under drip irrigation system for T ₁ and T ₂ treatments
Drip system	: Lateral- 16 mm, Spacing-1.2 m, Length- 45 m, Dripper (Non PC)- 4 LPH @ 1kg/cm ² , Emitter Spacing- 0.50 m.

5. Treatment Details:

T₁: Application of slurry by Deepjyoti jivamrut slurry filter without lateral flushing.

T₂: Application of slurry by Deepjyoti jivamrut slurry filter with lateral flushing.

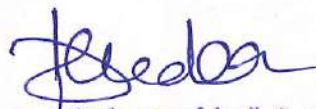
6. Results:

Layout of Drip irrigation system

The new drip irrigation system was installed on the field as per the layout depicted in Fig.1. The flat beds were prepared at 1.2 m distance and single lateral was laid on each bed. There were 8 laterals in each treatment. The plot size was 9.60 m x 45 m. The initial emission uniformity was worked out for the newly installed drip system which was 93.98 % (Table 2).

Application of slurry through Deepjyoti jivamrut slurry filter on discharge of emitters:

The slurry injection in drip irrigation system was carried out using battery operated injection pump (Fig. 2). The results regarding the application of slurry through



Deepjyoti jivamrut slurry filter on emitter discharge (LPH) of drip irrigation system are presented in Table 1. The treatment wise discharge at the head, middle and tail portion of the laterals were recorded (Fig. 3 and 4). The number of emitters considered to collect the discharge for each portion was 8. The initial discharges of both the treatments were the observed on the first day as a replication i.e. on 10.02.2026. Initially the discharge for both the treatments were recorded and they were as 4.16, 4.11 and 4.05 LPH at head, middle and tail portion, respectively. The calculated average initial discharge was 4.10 LPH.

The discharge of emitters recorded for 5 applications except initial discharge were treated as days of replications to evaluate the effect of application of slurry through Deepjyoti jivamrut filter on drip irrigation system. The average discharge was found in range of 3.92 to 4.04 LPH for treatment T₂ (with flushing) and the average discharge in the range of 3.08 to 3.80 LPH was observed for treatment T₁ (without flushing). It revealed that discharge of treatment without flushing (T₁) was found less for each application than discharge of treatment with flushing (T₂). The small particles of precipitate were flush out of the system for each application in treatment T₂ and because of that it attained more discharge. For each application and irrespective of treatment, the discharge was reduced from head portion to the tail end. This showed that, very tiny particles may precipitate towards tail end of lateral and that laterals need flushing before each application.

Table 1: Application of slurry through Deepjyoti jivamrut slurry filter on emitter discharge (LPH) of drip irrigation system.

Days of replications	Head portion of lateral		Middle portion of lateral		Tail portion of lateral		Average discharge (LPH)	
	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂
10.02.2026 (Initial)	4.16	4.16	4.09	4.09	4.05	4.05	4.10	4.10
02.03.2026	3.92	4.07	3.79	4.04	3.68	4.01	3.80	4.04
25.03.2026	3.73	4.01	3.66	3.99	3.54	3.97	3.64	3.99
13.04.2026	3.56	3.98	3.46	3.96	3.40	3.95	3.47	3.96
04.05.2026	3.30	3.96	3.25	3.95	3.19	3.94	3.25	3.95
26.05.2026	3.14	3.91	3.09	3.92	3.02	3.92	3.08	3.92

Application of slurry through Deepjyoti jivamrut slurry filter on emission uniformity:

Emission uniformity is a measure of the uniformity of emitters discharge from all the emitters of drip irrigation system. The field test emission uniformity is defined as the ratio of the lowest one-fourth of emitter discharge reading to the average emitter discharge of the drip irrigation system. The results regarding effect of application of slurry through Deepjyoti jivamrut filter on emission uniformity of drip irrigation system were presented in Table 2. The initial uniformity of newly drip irrigation system before slurry application was 93.98 %. The emission uniformity obtained from remaining 5 replications was studied to evaluate effect of application of slurry through Deepjyoti jivamrut filter on drip irrigation system. For treatment T₂ (with flushing), the emission uniformity results showed close variation i.e. 90.62% to 93.19% during 5 replications, however the treatment T₁ (without flushing) showed slightly higher variation i.e. 86.90% to 92.91% during 5 replications. The average emission uniformity of treatment T₁ and T₂ was 89.61 and 91.96%, respectively during 5 replications. Hence, it was revealed that there was not much reduction in emission uniformity as compared to initial one for both the treatments. This states that, Deepjyoti jivamrut filter can be effectively used for filtering slurry used for drip irrigation system, however the flushing of lateral before every application is advisable.

Table 2: Application of slurry through Deepjyoti jivamrut slurry filter on emission uniformity of drip irrigation system.

Days of replications	Emission uniformity during number of applications, (%)	
	T ₁	T ₂
10.02.2026 (Initial)	93.98	93.98
02.03.2026	92.91	93.19
25.03.2026	91.02	92.76
13.04.2026	89.20	91.99
04.05.2026	88.02	91.25
26.05.2026	86.90	90.62
Average of all except initial	89.61	91.96



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Conclusion:

On the basis of one year experimental results, it was concluded that there was minor reduction in emitter discharge and emission uniformity of drip irrigation system after application of slurry through Deepjyoti jivamrut slurry filter. Hence either treatment T₂ (application of slurry through Deepjyoti jivamrut slurry filter with flushing of lateral) or treatment T₁ (application of slurry through Deepjyoti jivamrut slurry filter without flushing of lateral) can be practiced for application of slurry through drip irrigation system. However, for better performance of drip irrigation system, it is advisable to go for flushing of lateral before every application of slurry filtrate to avoid reduction in emitter discharge and emission uniformity.



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Fig. 1: Layout of drip irrigation system



Fig. 2: Slurry injection in drip irrigation system



Fig. 3: Discharge measurement of emitter for treatment T_1 (without flushing)



Fig. 4: Discharge measurement of emitter for treatment T_2 (with flushing)



Fig. 1: Layout of drip irrigation system



Fig. 2: Slurry injection in drip irrigation system



Fig. 5: Emission uniformity measurement for treatment T₁ (without flushing)



Fig. 6: Emission uniformity measurement for treatment T₂ (with flushing)