



Irrigation Solution
Wheat
With Jain Technology™



JAIN®

Jain Irrigation Systems Ltd.

Small Ideas. Big Revolutions.®



Wheat growing areas of India.

The wheat growing areas of India are classified into 6 major zones.

- 1. Northern Hills Zone (NHZ) :** Western Himalayan regions of J&K, Himachal Pradesh, Uttaranchal, Sikkim and hills of West Bengal and N.E. States. This Zone has Wheat growing area of 0.8 million hectare (mha) which is predominantly rainfed. Av. Productivity of wheat in this zone is 1.6t/ha.
- 2. North Western Plain Zone (NWPZ) :** Punjab, Haryana, Delhi, Rajasthan and Western U.P, Tarai region of Uttaranchal. This zone has wheat growing area of about 9.5 mha. The average productivity of wheat in this zone is 3.9 t/ha.
- 3. North Eastern Plain Zone (NEPZ) :** Eastern Uttar Pradesh, Bihar, Jharkhand, West Bengal, Orissa, Assam, Sikkim and plains of far eastern states under irrigated conditions. This zone has wheat growing area of about 9.5 mha and average productivity of wheat in this zone is 2.5. t/ha.
- 4 Central Zone (CZ) :** Gujarat, Madhya Pradesh, Chattishgarh, Jhansi division of UP and Kota and Udaipur Rajasthan. This zone has wheat growing area of about 4.5 mha and average productivity of wheat in this zone is 2.4 t/ha.
- 5. Peninsular Zone (PZ) :** Maharashtra, Andhra Pradesh, Karnataka, Goa and plains of Tamil Nadu. This zone has wheat growing area of about 1.5 mha and average productivity of wheat in this zone is 2.9 t/ha.
- 6. Southern Hills Zone (SHZ) :** Hills of Tamil Nadu and Kerala comprising the Nilgiri and Palni hills of southern plateau. This zone has wheat growing area of about 0.2 mha and average productivity of wheat in this zone is 1.0 t/ha.

Varieties

The choice of the correct variety plays a very important role in achieving optimum yield. For deciding on a variety for cultivation under irrigated conditions, the following are very important considerations:

1. Disease resistance
2. Fertilizer responsiveness
3. Lodging and shattering resistance and
4. Desired maturity

Varieties, PBW 502, PBW 343, WH 542, PDW 509, PBW 373, are double dwarf varieties suitable for irrigated agriculture. They are aestivum blood and suitable for "atta" and bread.

Varieties, PDW 291, PDW 274, and PDW 233 are durum wheat (used for Maida and Pasta and Noodles) suitable for irrigated cultivation.

Soil and Climate

Wheat is grown in a variety of soils: sandy, loamy and clayey (black soil). The soil should be well drained and close to neutral pH.

Right from alluvium of Gangetic and Indus plains, clayey black soils of central and southern India to the desert soils of Rajasthan, all the soils support wheat crop.

Wheat has wide adaptability. It can be grown not only in tropical and sub tropical zones but also in temperate zones and the cold tracts of the far north. It can tolerate severe cold and snow.

It can be grown in regions where rainfall varies from 25 to 150 cm/year. Wheat requires medium (50-60%) humidity for their growth. But at the time of maturity crop requires less humidity and warm season. Wheat in India grows best in subtropical climates. Its requirement for best performance is given in Table 1.

Table 1 : The optimum temperature requirement for wheat at different physiological stages.

Growth stages	Temperature requirements
Germination	20 to 25°C mean daily
Accelerated growth	20 to 23°C mean daily
Accelerated growth	20 to 23°C mean daily
Proper grain filling	23 to 25°C mean daily

Precision farming

Precision farming is farming where 1. Timeliness of operations and 2. Precision in quantities of inputs and control measures are practised. The different steps followed in precision farming varies from crop to crop and differences of these practises from conventional practises also varies from crop to crop. In Precision farming of wheat we recommend the following steps: Planting on raised beds, adopting a plant spacing of 0.225 m x 0.2 m, irrigating with drip following an irrigation schedule and fertilizer thru fertigation scheduling and weed control by weedicide.

Land Preparation

Wheat crop requires a well pulverized but compact seed bed for good uniform germination. One deep ploughing with soil turning followed by two harrowings and planking is desirable.

Though in most of the areas wheat is planted on flat seed bed, for efficient water management and ease of drainage it is recommended to plant wheat on raised broad beds with 30 cm furrows between adjacent beds.

Seed rate

Crop	Seed rate, kg/ha	Time of sowing	Plant spacing (cm)
Irrigated Timely sown	100	10-25 Nov.	20-22.5
Irrigated Late sown	125	25 Nov. to 25 Dec.	15-18
Rain-fed timely sown	100	25 Oct. to 10 Nov.	20-25

Seed treatment

To protect the crop from Termites and White Ants, treatment is suggested with Chlorpyriphos 20 EC @ 700 ml per 100 kg of seed by mixing in 5 litres of water and spraying over the seed followed by seed drying overnight before sowing.

For the control of diseases like Bunts and Smuts, seed treatment is suggested with Vitavax, Bavistin, Thiram or Agrosan GN @ 2.5 gm per kg of seed.

Depth of sowing

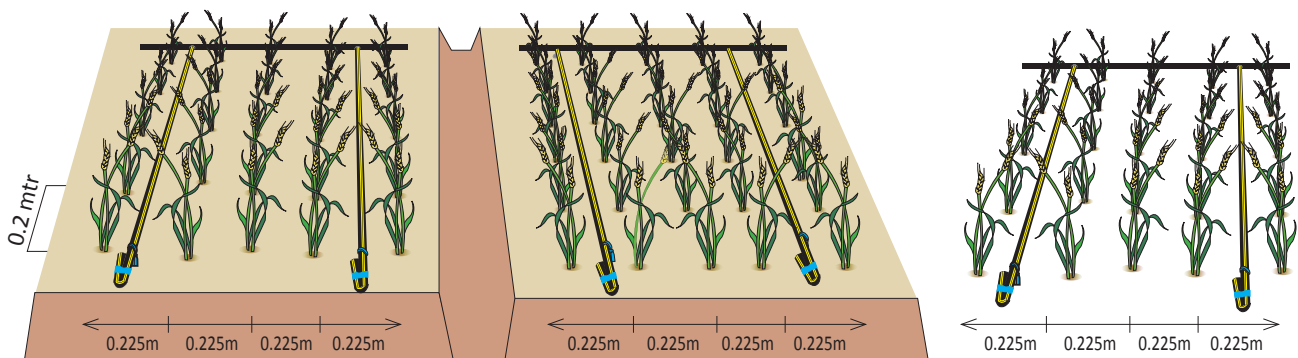
5-6 cm in the seed bed where sufficient soil moisture is maintained. The grain requires 35-45 % water by weight to germinate.

The best method of sowing is with a seed drill or dropping seed with a Chonga attached to a desi plough.

Wheat based cropping systems

Wheat is grown mainly in cropping sequences like Rice-Wheat, Jowar-Wheat, Bajra-Wheat, Maize-Wheat, Pulse-Wheat, Cotton-Wheat, Soybean-Wheat etc. in different parts of the country under irrigated condition

Jains Drip layout



BBF System

Flat System



Table 2 : Different wheat based cropping systems practiced in different states.

State	Cropping System
Assam	Maize-Wheat, Sugarcane-Wheat, Pigeon Pea-Wheat
Bihar	Rice-Wheat, Maize-Wheat, Sesame –Wheat
Jharkhand	Rice-Wheat
Gujarat	Groundnut-Wheat, Maize-Wheat, Rice-Wheat, Cotton-Wheat, Pigeon Pea-Wheat
Haryana	Rice-Wheat, Sorghum-Wheat, Cotton-Wheat, Bajra-Wheat, Maize-Wheat
Himachal Pradesh	Maize-Wheat
Jammu & Kashmir	Rice-Wheat, Maize-Wheat
Karnataka	Groundnut-Wheat
Madhya Pradesh	Rice-Wheat, Sorghum-Wheat, Soybean-Wheat, Cotton-Wheat,
Chattishgarh	Soybean-Wheat, Rice-Wheat, Sorghum-Wheat, Cotton-Wheat
Maharashtra	Soybean-Wheat, Bajra-Wheat, Rice-Wheat, Cotton-Wheat
Orissa	Sesame-Wheat,
Punjab	Rice-Wheat, Cotton-Wheat, Maize-Wheat,
Rajasthan	Sorghum-Wheat, Maize-Wheat, Bajra-Wheat
Uttar Pradesh	Rice-Wheat, Bajra-Wheat, Sorghum-Wheat, Sugarcane-Wheat
West Bengal	Rice-Wheat

Irrigation

Efficient water management and high Water use efficiency are achieved through drip irrigation.

For scheduling drip irrigation and fertigation knowledge of the physiological stages of the crop is essential. The physiological mile stones of wheat are as follows:

1. Crown Root Initiation (21 days after sowing)
2. Late Tillering (42 days after sowing)
3. Late Joining(60 days after sowing)
4. Flowering (80 days after sowing)
5. Milk stage (95 days after sowing)
6. Dough Ripe (115 days after sowing)

Table 3 : Water requirement of Wheat (eg : for Modipuram in UP)

	E mm**	Drip 0.9 effi (mm)	DRIP l/ha/day
1-15 days	4.59	0.44625	4463
16-45 days	4.4	2.772	27720
46-75 days	5.17	4.624278	46243
76-105 days	6.37	4.211278	42113
106-135 days	7.86	1.5589	15589

** When E changes the volumes also change accordingly for other locations.

Drip Irrigation - The concept

Drip irrigation is the slow, even application of water at low pressure to the root –zone using a net work of plastic tubing placed above the rooting zone (surface drip) or buried among the root branches inside the rhizospherical soil at a certain depth from surface. (subsurface drip).

In drip irrigation method, crops are irrigated daily to the precise volume of water equivalent to the evapotranspiration (ET) of the crop. It is estimated from daily Evaporation data using crop and canopy coefficients, the latter two factors vary with the age of the crop and the size of its canopy.

These are the two factors that affect the volume of transpiration of the plant/crop that changes with growth of the crop. Factoring in of these two coefficients is what makes the water requirement estimate unique to that particular crop at that particular stage of its growth.

Fertilizer Application

The fertilizer application should normally be on the basis of soil test. In case the facility for soil testing is not available, fertilizer may be applied at the following rates:

i) N: P: K

The time of fertilizer application depends upon the growth stages of the crop. Fertigation schedule is prepared considering this issue.

FERTILIZER RECOMMENDATION**

N:60 P:24 K:24 kg/ac			
UREA	kg/ac	146	
SSP	kg/ac	150	Full Basal
MOP	kg/ac	40	
Zn SO4	kg/ac	10	Full Basal
FYM	t/ac	25	Full Basal

** Based on Literature of Wheat Directorate.

FERTIGATION SCHEDULE FOR IRRIGATED WHEAT

Duration		Urea	MOP
5-20 DAG	5 times (every 3 days)	9.6 kg/time	0
21-80 DAG	20 times (every 3 days)	4.9 kg/time	0
60-120 DAG	20 times (every 3 days)	0	2.0 kg/time

DAG - Days of Germination

Benefits of Jain Drip in Wheat Cultivation



- Enhanced yield upto 50% .
- Conserving irrigation water up to 50%
- Conserving energy use for pumping up to 50%.
- Incidence of diseases and insects significantly low
- Higher water and fertilizer use efficiency.
- More Productive tillers
- Higher and cleaner straw production.
- Reduces yield loss due to Terminal Heat.
- Early Maturity.
- Uniform in grain size.
- Reduced chaffiness & shattering of grains.
- No need for land leveling (prerequisite for flow irrigation).
- Wheat and Rice crop rotation is possible with intermediate pulse crop during summer.
- Reduced humidity in micro climate .

ii) Secondary & Micronutrients

Sulphur

In some wheat growing areas, particularly where Rice–Wheat crop rotation is continuously taken, the deficiency of Sulphur is well known. Recent studies at Modipuram indicated wide spread deficiency of Sulphur in the soils of Rice-Wheat growing areas of western Uttar Pradesh.

The Sulphur deficiency can be managed by application of fertilizers like Super Phosphate or Ammonium Sulphate.

Zinc

Among micronutrients, Zinc (Zn) is the most common disorder of Indian soils, particularly those managed under Rice-Wheat cropping system.

Application of 10 kg Zinc Sulphate/ac is sufficient to meet the Zn demands of Rice as well as subsequent Wheat.

Management of Weeds

For an effective control of weeds following chemicals should be sprayed by making a solution in 400 to 600 litres of water/ha.

A mixture of Isoproturon at 0.75 kg a.i /ha and 2,4-D at 0.4 kg a.i/ha doses of each or Isoguard-plus @1.2 kg a.i/ha 30-35 days after sowing will control both narrow and broad leaf weeds.

Management of Disease

Most of the varieties released today are resistant to nearly all the diseases but even after electing such varieties if the diseases are noticed, we should apply the following chemicals for their control.

Glume blotch (*Septoria nodorum*)

Small, linear or oblong, to dark-brown blotches, appear on floral bracts and culms

Treat seed with Carboxin 75%WP@ 2 g/kg; practice crop rotation and field sanitation.

Pythium root rot (*Pythium graminicolum*)

Roots stunted and rotted; leaves pale green or brown

Seed treatment with Thiram (0.25%) or Carboxin 75% WP @ 2g/kg ; soil treatment with Thiram @ 25 kg/ha.

Leaf blight (*Alternaria triticina*)

Leaves show reddish-brown spots; later, the spots coalesce, giving the leaf a blighted

Appearance Grow resistant varieties like (K-9107), (HD-2643), (NW-1012), (NW-1014), (K-9465), (K-9644), HP – 2733, (K-8434), (K-7903).

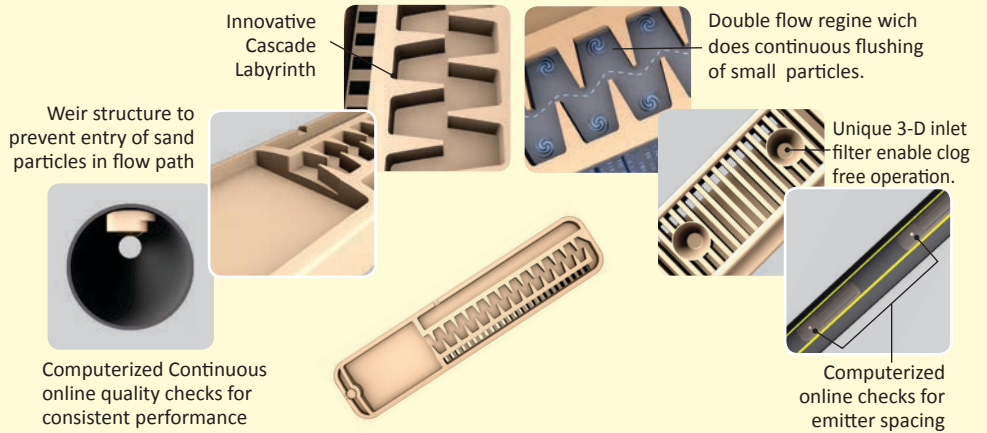
Seed soaking in hot-waters (at 52°C) for 10 minutes; spray of Ziram, Dithane M- 45 or Dithane Z-78 (0.25%)

ONE STOP SHOP for Your



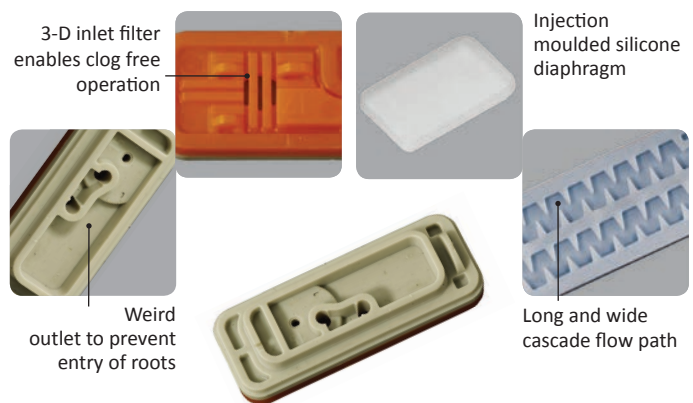
Jain Turbo Excel®

- ◆ Five Star rated dripline from worlds reknowned institute IRSTEA (Cemagref), France.
- ◆ Available discharge rates - 0.85, 1.2, 1.6, 2.1, 4 lph @ 1kg/cm².
- ◆ 12, 16, 20, 25 mm nominal diameter.
- ◆ Dripper Spacing 15, 20, 30, 40, 50, 60, 75,90 cms.



Jain Turbo Top®

- ◆ Available discharge rates – 1.1 & 1.7 lph
- ◆ Injection moulded silicone rubber compensates with pressure and discharge gives uniform performance.
- ◆ Anti Syphone feature (optional) prevents suction of sand and silt particles inside the dripper.
- ◆ Cascade labyrinth gives strong, self-cleaning turbulence.
- ◆ Available in 16 & 20mm nominal diameter. (12, 16 & 20 mm in Thin Wall option)
- ◆ Suitable for surface as well as subsurface installations.

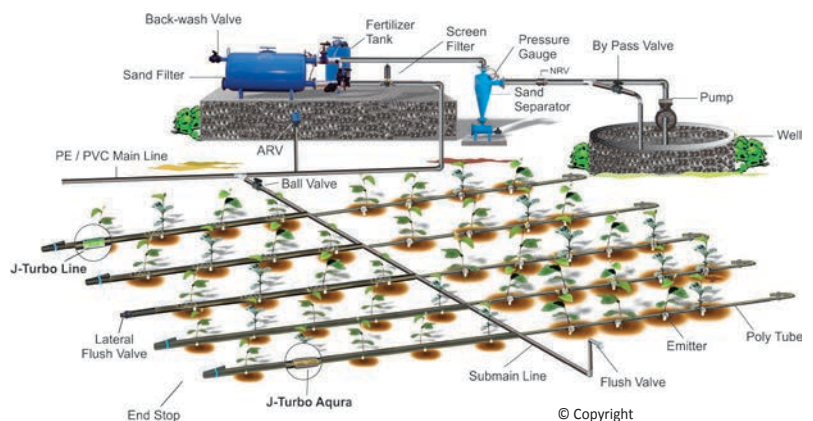


Why Jain Drip Irrigation ?

Water is not the only need of the plant. To uptake this water efficiently, it requires proper air-water balance within the root zone. Drip irrigation, with its low application rate, prevents the saturation of water within the root zone and continuously maintains field capacity. This provides a favorable condition for the growth of the plant. Drip irrigation also helps to use fertilizer efficiently. With drip irrigation water can be provided at frequent intervals which helps maintain required soil moisture level within the vicinity of the plant roots. Jain is the pioneer of drip irrigation. Ours is the only company in the world, which fulfills your entire irrigation system requirement under one roof.

Characteristics of drip irrigation

1. Water is applied at a low rate to maintain optimum air-water balance within the root zone.
2. Water is applied over a long period of time.
3. Water is applied to the plant and not to the land.
4. Water is applied at frequent intervals.
5. Water is applied via a low pressure network.



Micro Irrigation Needs

J-Turbo Line® Super



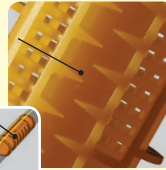
- Available discharge rates (at 1kg/cm²)
12mm - 2.2, 4 lph
16mm - 4, 8 lph
20mm - 2.2, 4, 8 lph
- Available in 12, 16 & 20 mm nominal diameter.
- Suitable for surface as well as subsurface installations.

Straight and wide labyrinth design makes the dripper truly clog resistant.

Computerized online checks for emitter spacing

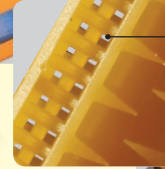


Hydrodynamic through bore design provides least obstruction to flow.



Hydrodynamically designed cascade tooth structure helps to create double flow regime for continuous flushing of dirt.

High precision inlet filters on opposite side prevents entrance of fine particles



Laser Drilled Multiple Outlet Holes

Turboline PC®

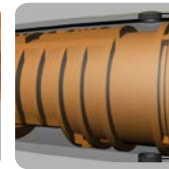
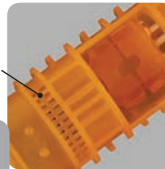


- Available discharge rates - 1.4, 1.8, 2.6 & 4.0 lph within pressure regulation range of 0.7 to 3 kg/cm².
- Injection moulded silicone rubber compensates with pressure and discharge gives uniform performance
- Application on undulating land/ Terrains/ Steep slopes.
- Available in 16 & 20 mm nominal diameter.
- Suitable for surface as well as sub-surface installation.
- Application where ever longer lateral length is necessary.
- Conforming to IS 13488, ISO 8261 Standard.

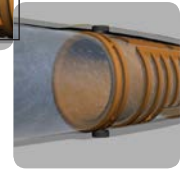
Diametrically placed multiple inlet filters



Injection moulded silicone diaphragm



Dual outlets to break vacuum & prevents soil suction



Smooth hydrodynamic design minimizes frictional losses & helps for longer lateral running length.

Largest Choice ! Customized Irrigation Solution

Online Dripper & Spray Heads



Jain Filtration Equipment



Jain Fertigation Equipment



Jain Rainport / Micro Sprinkler



Jain PVC/PE Pipes & Fittings



Automation Equipment



Foot rot (*Helminthosporium sativum* and *Fusarium* spp.)

Dark-brown patches appear on collar; plant turns yellow and dries up

Seed-dressing with Carboxin 75% WP@ 2 g/kg or Tebuconazole 2DS; delay sowing till the 3rd week of October

Hill bunt (*Tilletia foetida* and *Tilletia caries*)

Affected plants ripen earlier; ears become dark green; grains are transformed into a black sooty mass covered by a membrane and smelling of rotten fish

Treat seed with Carboxin 75% WP @2.0 g/kg, grow resistant varieties, e.g. 'Kalyan Sona' 'Panjamo 62' and PV 18';

Karnal bunt (*Neovossia indica*)

Diseased grains partly converted into black sooty powder which smells like rotten fish;

Grow resistant varieties like (HI-8381), Raj-3765, PBW-343, (HD-2643), (NW-1012), (NW- 1014).

Flag smut (*Urocystis tritici*)

Grey or greyish-black, long Seed streaks on leaves, leaf sheaths, eventually rupture and expose a black sooty mass of spore powder; affected plants stunted, with leaves twisted;

Seed-dressing with Carboxin 75% WP @ 2.0g/kg; grow resistant varieties; practice crop rotation, rogue out diseased plants

Loose smut (*Ustilago tritici*)

Smuted heads; grains replaced by a black powdery mass of spores;

Solar-heat or hot-water treatment of seed; grow resistant varieties e.g. Narendra Wheat (NW-1012), Narendra Wheat (NW-1014), Gomti (K-9465), Malviya – 468, Naina (K-9533)

Stem rust (*Puccinia graminis*)

Reddish-brown to oblong, pustules on culms and leaf sheaths;

Seed treatment with Carboxin 75% WP @ 2.0g/kg; grow resistant varieties.

Stripe rust (yellow rust) (*Puccinia glumarum striiformis*)

Mosaic mottling of leaves sometimes associated with flecking; also infects oats and wheat

Tolerant varieties Raj-3765, PBW_343, (HD-2643), (HP-1744), (HD-2687), VL-804, (K-9162), etc.

Leaf rust (brown rust) (*Puccinia recondite*)

Round or oblong, orange, scattered pustules on leaves

Grow resistant varieties like (HI-8381), (DL- 803-3), Raj - 3765), PBW-343, (HD-2643), (HP-1744), (DL-788-2), GW-273, (NW-1012), (NW-1014), (HD-2687), (HI-8498), (HD-4672)

Management of Insect pests

Termites: *Social insects that live underground in colonies ; attack young seedlings as well as grown up plants;*

Soil application of Fipronil 0.3% GR or Chlorpyrifos 10% GR @ 10 kg per acre just at the time of sowing

Stem-borer : *lay eggs in clusters inside the leaf sheaths; pinkish-brown caterpillars bore into stems and kill central shoots; causing dead-hearts.*

In the initial stage, pull out and destroy dead-hearts; spray Chlorpyrifos 20% EC @ 2ml/l

Cutworms : *Caterpillars are general feeders spray Chlorpyrifos 20 EC @ 2ml/l*

Armyworm : *Caterpillars march from field to field and voraciously feed on foliage; appear after heavy rains or early floods*

Trap caterpillars in grass heaps or plough up infested fields; Spray Profenofos 50% EC or Dichlorvos(DDVP) 76% EC @ 1ml/l

Thrips:: *Nymphs and adults lacerate tender leaves, causing characteristic whitish streaks; temperature favourable to rapid multiplication*

Spray Dimethoate 30% EC @1 ml/l or Diazinon 20% EC @1.5 ml/l or Acetamiprid 20% SP @0.5 g/l

Wheat aphids : *Nymphs and adults suck sap from leaves, tender shoots and immature rain; extremely fast, forming large colonies*

Spray Dimethoate 30% EC @ 1 ml/l or Diazinon 20% EC @ 1.5ml/l or Imidachloprid 17.8% SL @ 0.5ml/l

Shoot fly : *The maggots attack seedlings and kill the central shoots, causing dead-hearts*

Apply Phorate (10%) or Disulfoton (5%) to the soil at the time of sowing

Harvesting & Threshing

The crop is harvested when the grains become hard and the straw becomes yellow, dry and brittle. Most of the harvesting in India is done with sickle. However, in recent years in some states like Punjab, Haryana, Uttar Pradesh etc. harvesting & threshing is done by combine harvester.

Storage

The grain should be thoroughly dried before storage. Grains with less than 10% moisture store well. The storage pits, bins or silos should be moisture proof and should be fumigated to keep down the attack of stored grain pests.

Wheat - Terminal Heat Stress

What is Terminal Heat Stress : Optimum temperature for wheat anthesis and grain filling is 12-22°C thus temperature above 22°C causes heat stress to plant.

In last few years it has been observed that at many times during February and March temperature goes above 22°C.

Heat stress during reproductive phase in wheat causes floret abortion, pollen sterility, tissue dehydration, lower CO₂ assimilation and increased photorespiration which results in to reduction in number of grains per spike and grain weight, loss in yield as well quality.

It is established that, more than 10% yield is lost due to terminal heat stress. This loss is observed more in late sown wheat.

How Jain Rainport System help avoid terminal heat stress

- ◆ Maintains optimum soil moisture during all growth phases.
- ◆ Maintains leaf water potential and stomatal conductance.
- ◆ Micro Irrigation System ensures optimum soil moisture availability, which facilitates enhanced evapotranspiration and helps in reducing canopy surface temperature.
- ◆ Jain Rainport Sprinkler Irrigation Systems allow more moisture availability for evaporation resulting in temperature reduction at canopy surface.

Jain Micro Irrigation - A solution to prevent yield loss

- ◆ It has been observed that high temperature during reproductive phase causes rapid loss of soil moisture as plants try to uptake more water to cool them by transpiring more water.
- ◆ Light and frequent irrigation has been suggested best agronomic strategy to avoid yield loss from terminal heat.
- ◆ Jain Drip & Rainport Systems enables us to provide light and frequent irrigation to maintain soil moisture besides maintaining good microclimate.
- ◆ To fight terminal heat stress Jain Rainport Systems can do irrigation on daily basis or frequently. (Even on hourly basis to combat specific situations.)
- ◆ Results in significant increase in wheat yield.
- ◆ Jain Rainport System results in more grains per spike as well as increased 1000 grain weight. (Means bold grain.)
- ◆ Jain Drip irrigated wheat also gives significant reduction in loss due to terminal heat.
- ◆ Jain Rainport Systems are best suited for this purpose.
- ◆ Jain Rainport Systems can be also installed for short period specially to mitigate terminal heat during reproductive phase.



Rice + Wheat Cropping System

Rice - wheat cropping system is followed in major wheat growing areas and yield of both crops are stagnated or going down in these areas due to vanishing soil fertility and decreasing water availability and quality. Drip irrigation system offers solutions to improve yield besides associated other benefits. Drip irrigation system for wheat can be used for Rice as well as for various other crops of wheat based cropping systems.

Adopting drip irrigation for rice - wheat cropping system helps in increasing sustainability of this cropping system as it saves water and nutrients and gives higher crop yield. As scientific and sustainable farming advocates to grow at least one pulse crop in between rice and wheat, irrigation systems also allows to grow short duration pulse crop with limited irrigation during summer.

The drip irrigation system installed for Rice or Wheat, is also suitable to Maize, Soybean, Jowar, Bajra, Sorghum, Cotton, Vegetables and many other crops. Significant yield improvements besides associated benefits have been recorded in these crops by use of drip irrigation.

Benefits of Jain Drip in Rice Cultivation



- ◆ Direct Seeding and no transplanting results in reducing the seed rate and labour required for transplanting.
- ◆ No need of Nursery help in reducing cost of production.
- ◆ Conserving irrigation water up to 66%
- ◆ Conserving energy use for pumping up to 52%.
- ◆ Incidence of diseases and insects significantly low
- ◆ Higher water and fertilizer use efficiency.
- ◆ More Productive tillers
- ◆ Enhanced yield upto 50% .
- ◆ Higher and cleaner straw production.
- ◆ Early Maturity
- ◆ Uniformities in grain size
- ◆ Reduced chaffiness & shattering of grains
- ◆ No need for land leveling (prerequisite for flow irrigation).
- ◆ No need for labour use for trimming bunds and plugging breaches to contain water.
- ◆ Intercropping and rotation cropping is possible. Pulse rotation crop will be beneficial.
- ◆ Soil structure is maintained (absence of puddling operation that destroys soil structure.
- ◆ Lower mosquito population in the ecosystem as there is no standing water.
- ◆ Maintains aerobic condition in the soil.
- ◆ Prevents Nitrous oxide formation .
- ◆ Reduced humidity in micro climate .
- ◆ Prevents Methane emission and protects environment as there is no standing water
- ◆ Absence of pollution from leached and washed Nitrate.
- ◆ Ensures water energy and food security in a sustainable manner.

Jain Drip - Farmer Success Story



Mr. R. Kumawat
(Rajasthan)

Mr. Vijay Bhoot
(Madhya Pradesh)

Mr. Baldev Singh
(Haryana)

Mr. S. Arshwinder
(Punjab)



Address	Rampuria, Asind, Dist. Bhilwara Cell: 08107521797	Badgonda Mhow, Dist. Indore Cell : 09826010872	Santnagar, Rania, Dist. Sirsa Cell: 09896500723	Vill. Ghosegarh, Dist. Ludhiana Cell: 09779759685
Variety	Lok - 1	Lok - 1	W - 343	HD 2967
Soil Type	Loamy	Medium black clay loam	Medium	Medium
Drip System detail	Dripline J-Turbo Aqura	Dripline J-Turbo Aqura	Dripline J-Turboline	Jain Rainport Mini Sprinkler
Area Cultivated	5 acre	10 acre	2 acre	2.5 acre
Date of sowing	8/11/2012	20/12/2009	21/11/2011	16/11/2012
Lateral spacing	100 cm	60 cm	60 cm	10 x 10 mtr
Crop Spacing (cm)	22.5 cm	22 cm	20 cm	22 cm
Total Cost of Drip system/acre	Rs.57,200/acre	Rs.42,000/acre	Rs.60,000/acre	Rs.29,500/acre
Subsidy given to the farmers	Rs.41,200/acre	Rs.29,400/acre	Rs.45,000/acre	Rs.17,500/acre
Cost of drip per crop (6 Crop seasons)	Rs.2,140	Rs.2,100	Rs.2,500	Rs.1,380
Cost of cultivation /acre	Rs.14,000	Rs.6,000	Rs. 6,500	Rs.6,434
Total costs (Crop + drip cost of 1 season)	Rs.16,140	Rs.8,100	Rs.9,000	Rs.7,814
Yield (t/acre)	2.84	1.8	2.71	2.06
Selling price/t	Rs.13,500	Rs.12,000	Rs.13,300	Rs.13,500
Gross Income for 1 acre	Rs.38,340	Rs.21,600	Rs.36,043	Rs.27,810
Net Profit (1 acre)	Rs.22,200	Rs.13,500	Rs.27,043	Rs.19,996
Benefit to Cost Ratio	1.37 : 1	1.66 : 1	3 : 1	2.55 : 1
Incremental Yield	1.04 t/acre	0.6 t/acre	0.9 t/acre	0.3 t/acre
Net Incremental Income	Rs.14,040	Rs.7,200	Rs.11,970	Rs.4,050
Water Saved	50%	55%	45%	40%



The Company

Jain Irrigation Systems Ltd. (JISL) derives its name from the pioneering work it did for the Micro Irrigation Industry in India. However, there is more to Jain Irrigation than Irrigation. Now Jain Irrigation is a diversified entity with turnover in excess of Rs. 5000 crore. We have a Pan-India & Global presence with 28 manufacturing bases spread over 4 continents. Our products are supplied to over 116 countries with able assistance from more than 6700 dealers and distributors worldwide.

Jain Piping Division is the largest producer of Thermoplastic piping systems for all conceivable applications with pipes ranging from 3 mm to 1600 mm in diameter and in pressure ratings ranging from 1.00 kgf/cm² to 16 kgf/cm² and above. JISL has a production capacity of over 5,00,000 M.T. per annum or 5000 km/day

JISL is the only manufacturer to own DSIR approved R&D setup with state-of-the-art facilities.

The pipes are manufactured conforming to IS, DIN, ISO, ASTM, TEC and other customised specifications.

The Piping Division includes PE, PVC Pipes and Fittings catering to the urban and rural infrastructure needs of the country apart from irrigation needs of the farmers.

Micro-Irrigation Division manufactures a full range of precision-irrigation products, provides services from soil survey, engineering design to agronomic support and nurtures a sprawling 2300 acre Hi-Tech Agri Institute. It undertakes turnkey projects for total agricultural development. The division's pool of over 800 agri scientists, technologists and technicians are well equipped to render consultancy for complete or partial project planning and implementation e.g. Watershed or Wasteland and/or Crop Selection and Rotation.

Tissue Culture Division grows Grand Nain Banana plantlets and has established vast primary and secondary hardening facilities and R&D labs.

Agricultural and Fruit processing wastes are converted into Organic Manure. Neem-based pesticides are also formulated. Both are critical inputs for Organic Farming.

Agro Processed Products Division processes tropical fruits into Purees, Concentrates & Juices. The Dehydration facility dehydrates Onions & Vegetables.

Plastic sheet division's globally marketed products help conserve forests by providing alternatives to wood in the home building market.

Solar Energy Heating, Lighting Equipments, Solar Pump and Bio-Energy sources are new additions.

In a nutshell, the Corporation is the only 'one-stop-shop' encompassing manufacturing and marketing of hi-tech agricultural inputs and piping services as well as processing of agri produce. No wonder, it has distinguished itself as a leader in the domestic as well as global markets.

The corporate product range improves productivity and adds value to the agri-sector. Conservation of scarce Natural resources, protection and improvement of the environment emerge as a blessed outcome.

The Corporation has pioneered and raised a new Micro Irrigation industry in India and thereby helped harbingers a Second Green Revolution.

The reward has been over millions of smiling farmers and scores of customers in 116 countries.

© Copyright: This catalogue has been prepared for providing information about Jain Irrigation Systems Ltd. Jalgaon, India, to the present/ prospective customer. This catalogue material contains proprietary and confidential information about the company. It should not be used for any purpose, other than the purpose specified here. No part of this information should be disclosed, reprocessed, copied or stored in any manner without the prior consent, in writing, from the company.

The actual use of the products by the purchaser / customer is beyond the control of JISL and JISL can not be held responsible for any loss and/or any consequential liability arising out of incorrect or faulty or mis-use of the products.

Crop yields depend on climate, soil and management and therefore can't be guaranteed by the company.



Tel: +91-257-2258011; **Fax:** +91-257-2258111; **E-mail:** jisl@jains.com; **Website:** www.jains.com;
Toll Free: 1800 599 5000

