GREENHOUSE NETAFIM™

Planning Water systems for Greenhouses

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- Unique basic requirements
  - Short irrigation cycles
  - Very accurate water application
  - Very accurate fertilizer application
  - Detailed data systems
- Multiple systems
  - Drip
  - Overhead
  - Misting
  - Wet-wall
  - Service water

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Basic requirements

Short Cycles:-
- **Shallow roots**
- **Limited root volume**
- **Limited water holding capacity**
- **Maximum flexibility**

Accuracy:-
- **Frequency**
- **Quantity**
- **Recipes**
- **pH**

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Pulse Irrigation

- Irrigating more than 4 times per day
- Feeding as and when required
- Real-time adjustments: pH & EC
- Energy and fertilizer savings
- CNL systems
- Computer control

Why do we need a CNL designed System

If a flower grower is irrigating for 2 hours day and it takes say 2 minutes to fill and 1 minute to empty the pipelines:

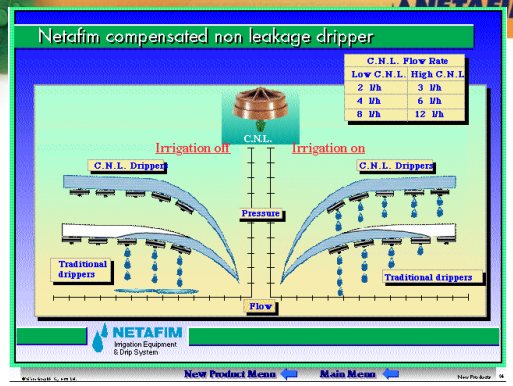
Once a day	3 min / 120 min	2,5%
Twice a day	3 min / 60 min	5%
Four times a day	3 min / 30 min	10%
Eight times a day	3 min / 15 min	20%

Other important considerations

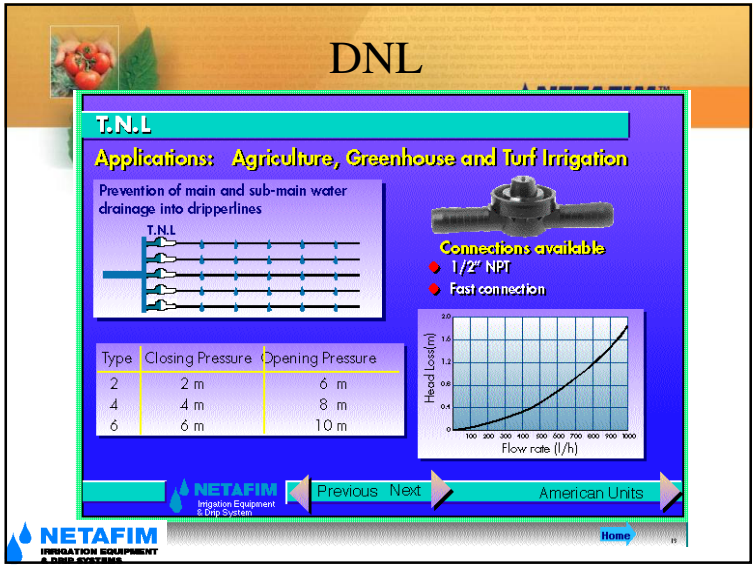
Consider:- Action time from controller to •
Pumps •
Filters •
Valves •
Consider:- Reaction time to controller from •
Water meter •
EC sensor •
pH sensor •
Consider:- Keeping the system full all the time •

Main Components CNL System

CNL drippers: •
Pot systems •
CNL dripper lines (integral) •
Troughs systems •
DNL •
Large greenhouses •
Dedicated Main Lines •



DNL



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CNL drippers: •

Pot systems •

DNL •

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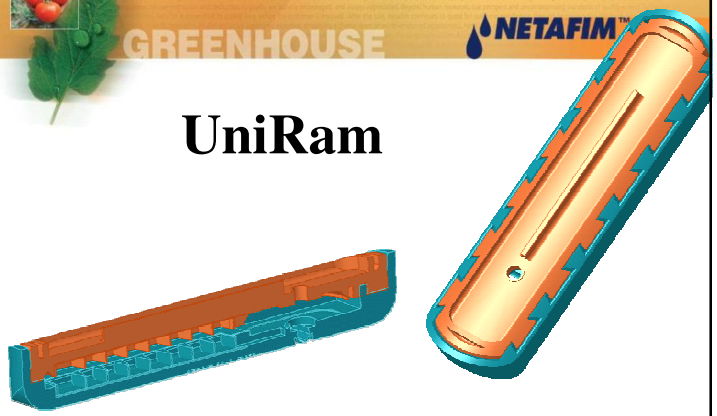
UniRam



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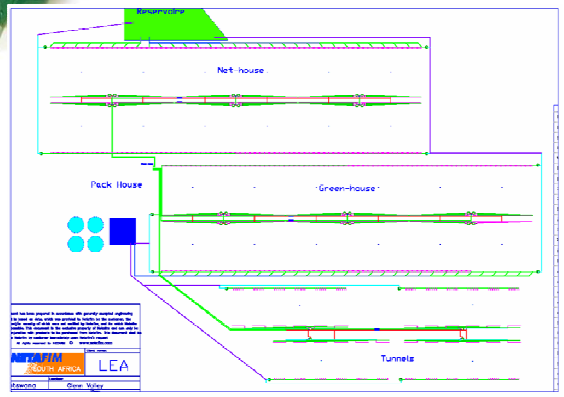
Uniram &DNL

Dedicated Main Lines

- One line for each Irrigation block
- All valves in the Pump house

Multiple system

- Most greenhouses will have at-least two water systems
- The multiple systems are required to work simultaneously but separately
- There-for each system must be independent
- Components of systems can be used as back-up for other systems



- Two systems:
- Nutrigation
- Service/Wet-wall

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Two examples of pump rooms with multiple systems •
Drip, Misting & Service water •

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Valves in Pump room

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Summery

Consider:- Unique basic requirements •
Pulse irrigation •
Non-drain system •
Dedicated main-lines •
Consider:- Multiple water systems •
Back up systems •
Consider:- Keeping the system full all the time •

In Conclusion

get the basics right

And everyone will cheer

Thank you