



**Howard  
Nurseries Ltd**

**Proudly Presents**



# Howard Nurseries Ltd

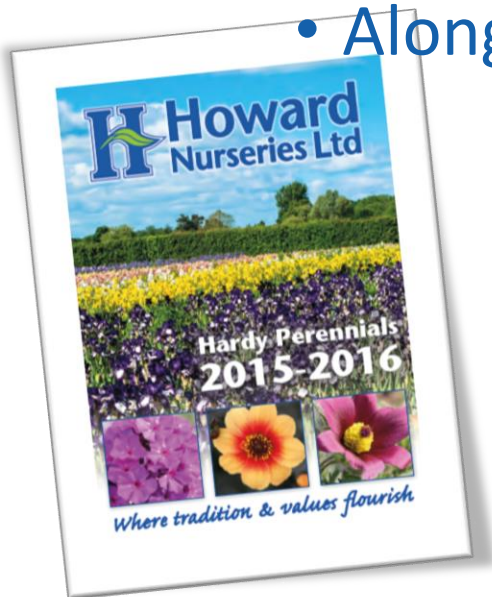
The Importance Of Water  
To A Local Business And  
How They Are Adapting



- Founded 1969 by David Howard on half an acre of land.
  - 46 years later, 150 acres in size.
- Foremost herbaceous perennial producer in Great Britain.
- Supply over 2 million plants annually.
  - Over 1500 varieties.



- Our water management has had to evolve.
- To sustain our ever expanding catalogue.
- To maintain high quality plants we have a reputation for.
- Alongside this, water conservation is more important than ever.



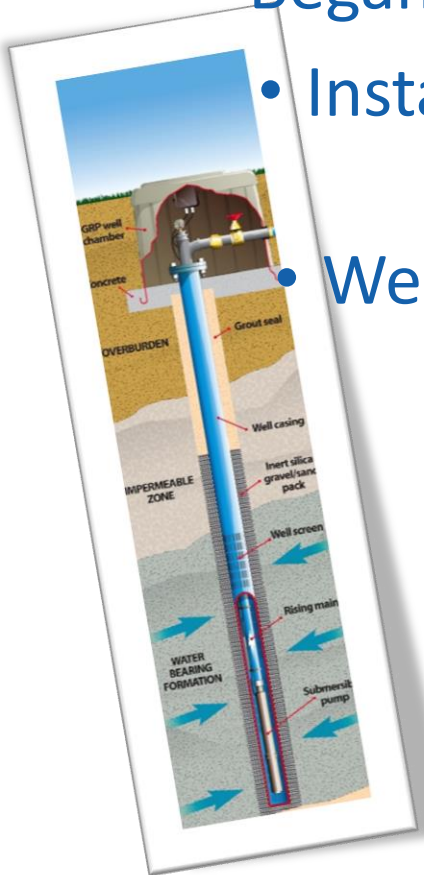


- Bad quality water = bad quality plants.
- Good quality water = good quality plants.
  - Water management is fundamental.



# The Beginning

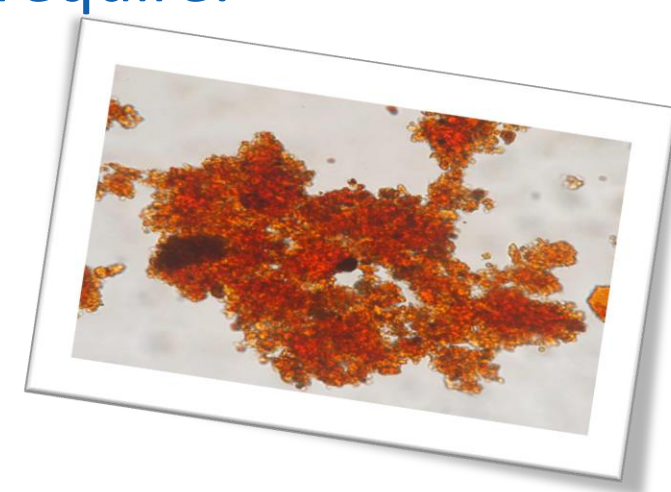
- Began with a borehole system with an eye to a reservoir in the future.
- Installed runoff drainage channels leading to current reservoir site every single time we expanded.
- We needed more control over our water management and water runoff.



- Initial starting cost expensive; two pumps, tank storage and water licenses take a while to pay themselves back for a new business.
- Bore water good for several years in terms of amount of water it can supply.
- With regard to plant health, not so good.



- Borehole water vs plants is essentially a snowball effect with one issue leading to another.
- Very cold temperature shocks plant roots, stunting growth in certain varieties.
- Iron deposits locks up other nutrients plants require.





- Salinity reduces water availability affecting water infiltration rate.
- Sufficient water cannot be infiltrated from one irrigation cycle to the next, this leads to continuous watering.



- Continuous watering leads to crusting of peat, excessive weeds, nutritional disorders, drowning of the crop and rotting of seeds. Most serious of all is potential for toxicity and disease development in plants and even humans.



- Toxicity, in particular too many chloride and sodium primary ions get taken up through leaves leading to damage, even more so when hot.
- Risk of disease development such as powdery or downy mildew, phytophthora, pythium and legionella to name but a few.





- Corrosion from borehole water results in widespread damage to irrigation equipment.
- Sedimentation build up leads to clogging of pumps and sprinkler heads.
- Every year problems increased.





- Scorching hot summer 2006 final tipping point, lots of irrigation required = lots of problems previously mentioned increasing tenfold.
- Early 2007, invested in a 2 million gallon reservoir with all drainage channels on site leading to it.
- However, we tweaked stereotypical view in a way that we felt would be more environmentally aware and improve on water conservation.



- Our goal was to create a system which was 100% self-sufficient.
- All water was directed into a large channel surrounding the reservoir that was full of Norfolk reeds which provide a natural filter.
- Reeds run in conjunction with sand filters to further improve filtration and water quality.



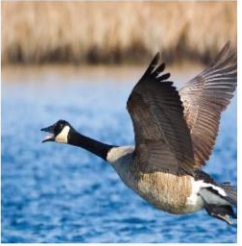
- Works through existing irrigation pipe system.
- Computer system controls both manual and automatic working of every single individual pipe if needed.
- Pressure system pump, provides water at the exact pressure you need it for, no more, no less.
- Entire system powered with solar panels.



- In 2013, with further site expansion we built and linked up a second reservoir of 4 million gallons in size.
- Redirected and expanded reed bed channel, increasing Norfolk reed total into the tens of thousands.
- Total is now 6 million gallons of water = 27 thousand cubic metres = 27 million litres = 47.5 million pints!







- Wildlife flourishes on our site.

• 24 recorded species including Moorhen, Tufted Duck, Coot, Kingfisher, Reed Bunting, Egyptian Goose, Little Owl, Water Vole and Grass Snake.



• Large fish population of 10,000 Common, Mirror and Ghost Carp and Tench which we grow for local fishing lakes.



- Beehives now on site, large bee population, with the honey sold at local shops.
- Bee orchid population is on the increase.



- Nominated for and won several environmental and water management award's over the years.
- In 2014 we won the Green Suffolk award for water management.
  - Current rating of Gold in the Suffolk Carbon Charter.



# **Howard Nurseries Ltd** Self-Sufficient?

- With several years of pre-reservoir data recorded and with close monitoring of post-reservoir usage, we are proud to say that every single year since 2007 we have achieved our goal of being 100% self-sufficient with our water.







# Howard Nurseries Ltd

Thank You For Listening.

Hope You Enjoy The Rest Of Your Evening.

# Visit us

Friday 18th September 1.30pm -3.30pm

Bury Road, Diss, IP22 1PX

Just sign in on the sheet Debbie Wargate has