



DOROT DIGITAL SOLUTIONS

TASTE OF SMART DATES

MIXING JUNCTIONS
CUSTOMER: KETURA DATES PLANTATION

CASE STUDY

DID YOU KNOW?

The Judean date palm is a date palm (*Phoenix dactylifera*) grown in Judea. It is not clear whether there was ever a single distinct Judean cultivar, but dates grown in the region have had distinctive reputations for thousands of years, and the date palm was anciently regarded as a symbol of the region and its fertility. Cultivation of dates in the region almost disappeared after the fourteenth century AD from a combination of climate change and infrastructure decay, but has been revived in modern times.

The only surviving specimen of the Judean date palm, germinated from a 2,000-year-old seed discovered in archaeological excavations, was planted in Ketura and continues to grow there (as of February 2020, the palm tree had reached 3.5 meters). It is the oldest verified human-assisted germination of a seed. It was nicknamed 'Methuselah'.

We may soon be able to taste dates that Jesus might have eaten!

Kibbutz Ketura, located in the Arava desert in southern Israel, receives an average annual rainfall of only 11mm.

Source: Wikipedia



THE REQUEST



I need to irrigate my dates.

We irrigate our extensive date fields with marginal water sources. We must restrict maximum EC levels otherwise our dates and trees will suffer and ultimately die.

We have two water sources of different salinity levels. Optimal EC levels are between 3-5 mS/Cm (depending on growth stage).

We need to maintain an automatic and constant EC level. Do you have a solution?

Lonny Scheib, Ketura Date Plantation Manager



CHALLENGES

The Ketura date plantations cultivate around 800 tons of dates per year, designated mainly for export. At approximately 40%, water represents the highest expenditure for dates plantation. Dates require good quality water, which in Israel is supplied by Israeli Water Company at a high cost and with limited quantity. As a result, the customer was required to mix expensive potable water with less expensive, high salinity water, in order to obtain an optimal balance between water quality and cost while maximizing date quality and saving water.

CLIENT'S REQUEST	OUR SOLUTION
Real time salinity (EC) control	Analog (4-20mA) sensor input to ConDor - out of the box capability
Remote access using cellular communication	Out of the box capability
Dynamic capabilities	Fully open OR regulate to maintain predefined EC level
Lack of on-site electricity	Solar panel is provided
Change the EC set point remotely	Using SKYplatform cloud based SCADA system which allows changing function configurations by remote access



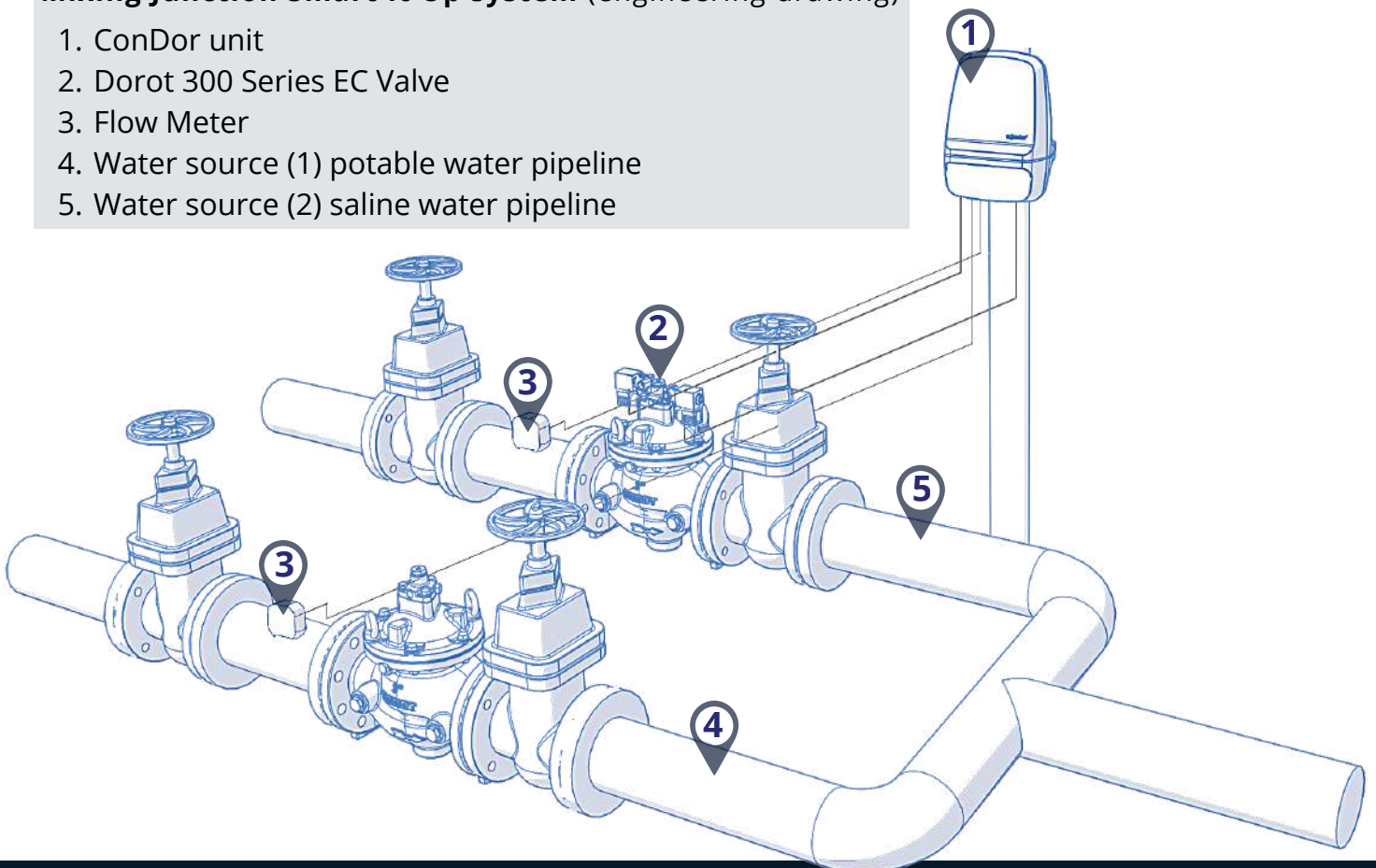
OUR SOLUTION

Dorot Series 300 EC (electrically controlled) valve is installed on the potable water source (which is supplied at a higher pressure) and controls the mixing junction's output, to maintain an EC (Electric Conductivity) level of 3-5 mS/cm for Kibbutz Ketura's dates plantation.

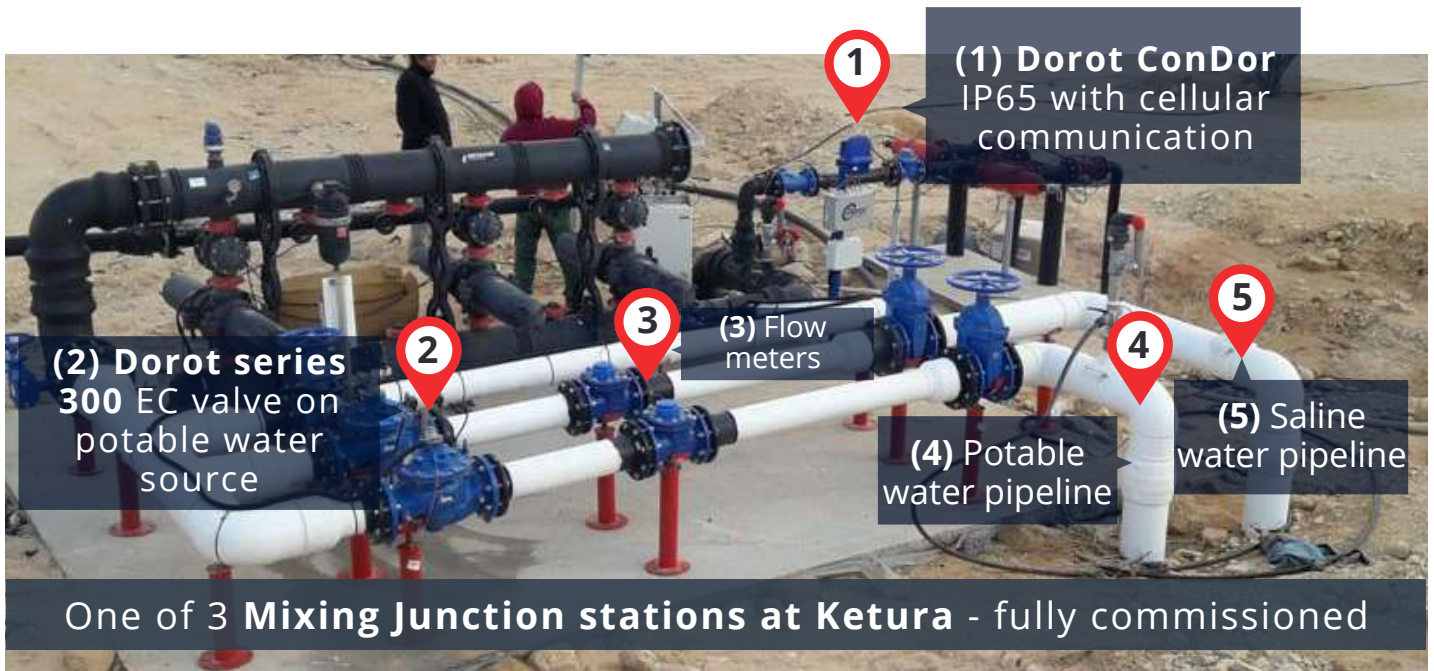
- Power is supplied via a solar panel provided as part of the SIU solution.
- The project includes 3 identical sites at a distance of several kilometres from each other, on 3 different plantations.

Mixing Junction Smart It Up system (engineering drawing)

1. ConDor unit
2. Dorot 300 Series EC Valve
3. Flow Meter
4. Water source (1) potable water pipeline
5. Water source (2) saline water pipeline



THE RESULT



Ketura Mixing Junction. Work in progress.



SUMMARY

- **Flexible**
 - Provides dynamic control solution
 - Easily change Setpoint/functions by the clients
- **Simple**
 - Only one easy control trim configuration
 - Easy to integrate and operate by local personnel
- **Smart**
 - Remote and local control

"In 2019, the upgraded generation of ConDor was installed at 3 different sites, permitting regulation of two water supplies, resulting in the correct level of salinity and maximizes cost efficiency. At the same time, the system facilitates real-time on-site filed communication via mobile phones and the cloud-based system.

We had 3 different sites and 3 different installation. It worked very well for us: in the field, the systems work without any support. We want to go further because the solution is both simple and with a lot of functionality - we want to take that functionality further and increase our efficiency (..)"

TESTIMONIAL FROM OUR CLIENT, LONNY SCHEIB,
KETURA DATE FIELDS MANAGER



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