

Survival of the driest – Olam’s innovative onion breeding program

August 26, 2017



OLAM IS A LEADING AGRI-BUSINESS OPERATING FROM SEED TO SHELF IN 70 COUNTRIES, SUPPLYING FOOD AND INDUSTRIAL RAW MATERIALS TO OVER 23,000 CUSTOMERS WORLDWIDE.

California, one of the largest food producing regions in the world, was until recently experiencing a five-year drought (2012-2017). Olam’s vegetable processing facility, in the water-challenged Firebaugh watershed, sources large quantities of onions from local growers to produce dehydrated onions. Their long-term selective breeding program to produce onions with higher solid content and lower water content, combined with a focus on optimizing irrigation in collaboration with the growers, has delivered significant value to Olam, growers and the natural environment.

As a result of these efforts, Olam has achieved quantified savings since 2009 of: **9.7 billion liters of water, 284 tons of nitrogen, 20,138 metric tons of greenhouse gas emissions and 4.6 million kwh of power.**

Olam is in the process of transferring learnings from their Californian experience to their new operations in Egypt.

PROGRAM RATIONALE

Like all leading businesses, Olam has a focus on operational efficiency and cost control. With water being an essential input to both the growing and processing of onions, Olam recognised many years ago the potential significant business risk of not being able to secure the required water supplies due to local water availability constraints in California. As well as improving water availability, saving water also brings cost and energy savings and there are associated benefits in terms of reducing greenhouse gas emissions.

Olam’s Firebaugh facility is located within the water stressed Firebaugh watershed in Fresno County, California. The facility sources raw onions from approximately 60 growers in the region. Many of the growers are 2nd and 3rd generation onion growers for the business.

PROGRAM APPROACH

Olam’s water stewardship approach in California is comprised of the following core elements:

- ▶ Onion selective breeding program – Olam’s Hanford Agriculture Research Facility has run a selective onion breeding program for many years. Even small gains in terms of breeding desirable traits such as increased solid content and lower water content of onions can deliver relatively large cost and environmental gains when applied to large production volumes.
- ▶ In-field water efficiency initiatives in collaboration with the growers – This includes drip irrigation systems that are buried beneath each onion row to water roots directly to eliminate evaporation and reduce water use. Growers have seen a 25% reduction in water usage with the drip irrigation system.
- ▶ Application of water stewardship principles using the Alliance for Water Stewardship (AWS) standard as a framework – In working through the various AWS principles with the support of World Wildlife Fund and EcoLab, Olam has broadened its perspective on water issues from solely a production facility level to the watershed level.

“*Can’t think of anything more critical to our business than water.*”

**DAVE WATKINS, SENIOR VICE PRESIDENT,
AGRICULTURE OPERATIONS, OLAM**

MAIN CHALLENGES THAT HAVE BEEN ENCOUNTERED INCLUDE

- ▶ As onions are a biennial crop it is only possible to get one cycle of improvement every two years through selective breeding programs.
- ▶ With onions being a ‘minor crop’ there are a relatively limited number of public breeding programs and external resources that can be drawn upon.



Olam SVI - Advancing our commitment to water stewardship

PROGRAM RESULTS AND BENEFITS

Savings by Olam over the past four years from a 2009 baseline include:

- ▶ 9.7 billion liters of water (2.13 billion gallons)
- ▶ 12.7 tons in pesticides (28.5 thousand pounds)
- ▶ 20,138 metric tons in greenhouse gas emissions
- ▶ 284 tons in nitrogen (636 thousand pounds)
- ▶ 1.07 million liters of diesel (235 thousand gallons)
- ▶ 4.6 million kwh of power
- ▶ 24 million therms of natural gas

LESSONS LEARNED

- ▶ A structured approach to water stewardship such as outlined by the Alliance for Water Stewardship Standard helps to challenge the way in which a shared, finite resource is viewed and used.
- ▶ Strong and long-lasting relationships with the growers has been critical in delivering on water stewardship initiatives and cost savings as well as reducing the supply chain risk profile.
- ▶ Whilst plant breeding can generate tremendous rewards and benefits it requires sustained effort and focus over many years.

“Agriculture in California will not be possible without continued consideration of available resources and its management.”

GEORGE SEASHOLTZ, ONION GROWER, MENDOTA, CALIFORNIA

WHAT NEXT?

The next step for Olam is to:

- ▶ Transfer learnings to its Egyptian operations, which are growing onions in reclaimed desert areas.
- ▶ Develop its in-house capabilities relating to the use of specific DNA sequences (markers) in plants as a relatively rapid means for identifying desirable traits.

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