How we manage key issues

Soil degradation

2015 was the UN International Year of Soil, an apt precursor to the launch of the Sustainable Development Goals. The Montpellier Panel encapsulated the importance of soil in its report: "as soil is the cornerstone of food security and agricultural development, its care, restoration, enhancement and conservation should intuitively become a major global priority".

The Panel also highlighted some stark facts:

- Degraded soil affects nearly on third of the earth's land area. Land degradation reduces topsoil, depleting nutrients and resulting in enormous environmental, social and economic costs.
- There has already been substantial impact in Africa with 65% of arable land, 30% of grazing land and 20% of forest damaged.
- As a result, the Panel estimates that in Sub-Saharan Africa 180 million people are affected and there is a US$68 billion per year in economic loss due to land degradation.

Soil management is therefore an ongoing priority for our business, but as with many issues it is interconnected to other material areas such as climate and water scarcity. Here's a snapshot of the measures we took in 2015:

Supporting smallholders

For many smallholders, soils are exhausted due to poor soil management practices, population pressure on land, expensive chemical fertilisers, and labour-intensive organic nutrients. In many cases Olam is supporting smallholders through an integrated soil fertility management programme to improve access to fertilisers and soil management techniques to improve yields and at the same time help the farmer save money.

This is achieved by training and supporting farmers in 3 activity areas:

(1) Increasing organic matter through compost, household waste, rotting leaves, and pulp;

(2) protecting the soil through mulching (to reduce evaporation and increase organic matter), planting agroforestry trees for shade and leaf fall, and intercropping with leguminous trees and food crops, and

(3) appropriate application of inorganic fertilisers, coupled with access to these fertilisers on both cash and credit.

Improving nutrient and moisture uptake for our almonds in California

In California, our almond orchards have been subject to drought conditions for 4 consecutive years, going into its 5th in 2016. Optimising water through soil management has therefore been essential. To improve soil health, the teams have been increasing the use of soluble calcium which improves soil porosity, allowing water to infiltrate through the root zone which will improve nutrient uptake efficiency. At the same time, they have been working to increase the activity, diversity, and populations of soil microbes by increasing soluble carbon levels. Soil microbes release nutrients in the soil for plant growth and health.

Taking an industry leadership role for cotton

During 2015 we also collaborated with the University of Cambridge Institute for Sustainability Leadership along with Asda, Bayer, C&A, Cargill, Kering and Value Retail on *'Threading natural capital into cotton'*. The report, published in February 2016, highlights the dependence of cotton production on natural resources that relate particularly to water, biodiversity and soil. An online tool can help businesses purchasing cotton 'determine the types of interventions that they should be discussing with their supply chains for sustainable cotton'.

Key issues for cotton and soil include high rates of pesticide application, compaction due to farm machinery and vehicles, and erosion of top soil. Improved farming practices in the USA have shown considerable improvements: "since 1980, each acre of cotton farmed in the USA has 40% less soil erosion, whilst yields planted almost doubled." If we can help advance these practices in cotton growing regions across the world, the impact will be considerable.

Olam is encouraging adoption of sustainability standards for producing cotton among the large cotton growers in Brazil and Australia by providing a ready market for BCI (Better Cotton Initiative) certified cotton. The BCI certification programme is founded on the progressive use of sustainable environmental, social and economic practices – the 3 pillars – on growers' farms. Our BCI compliant purchases in Brazil represented 71% of our 2014 and 87% of our 2015 volume.

A Colombian coffee farmer incorporating compost into the soil.

Testing soil and moisture quality in almond orchards, USA.

Maximising yields

We recognise that we need to derive the maximum quality and yield from the land we have developed. For our palm plantations in Gabon, we have invested in the construction of a Centre of Excellence which will undertake the testing and analysis of plant tissues, soils, fertilisers, water, effluent, and agri-chemicals to improve yield and efficiency. It also aims to reduce production costs through breeding, tissue culture, agronomy and crop protection.

Research and Development is also an area characterised by strong collaboration and partnerships. For our palm plantations, we have initiated tie-ups with reputable research organisations, such as Temasek Life Sciences Laboratory (TLL) and the National University of Singapore (NUS), the Agropolis Fondation in France, and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Australia.

For example, we collaborated with TLL on bio-fertiliser and pollination during the rainy season and recently undertook the management of elephants and palm weevil Rynchophorus Sp in the plantation as part of an integrated pest management and crop protection programme with CSIRO and Agropolis.

Additionally, we are working with NUS to provide sufficient high quality planting materials for future expansion developed specifically for utilisation in Africa. Our long-term goal is to identify and select planting materials with 30% higher yield (oil per hectare per year basis) than the current commercial planting materials adapted to conditions in Africa.

Independent research activities also include irrigation, fertiliser, progeny trials, clonal plantings, drone application, oil palm breeding, integrated pest management and fruit ripening using plant growth regulators and bio-fertiliser as catalysts.

Palm nursery in Gabon