OMAN GREEN AWARDS 2011

NOMINATION FORM

Instructions for completing the nomination form:

1. Please use a separate Nomination Form for each award category.
2. You may attach extra paper as necessary
3. In the event you attach photographs, Statistical Tables and Reports to support your nomination they should be clearly labeled and marked
4. Please note that it is mandatory to provide two independent referees for the Nomination to be considered.

Organization Details:

Organization Name	Sultan Qaboos University
CR No.	No (5) Green Research Award
Organization Type (Business/NGO/Gov)	GOV
Website	www.squ.edu.om
Location /Address	Sultan Qaboos University, College of Agricultural & Marine Sciences, Department of Soils, Water and Agricultural Engineering, P.O. Box 34, Al-Khoud123, Muscat, Oman

Optional Contact: Name & Number

Award Category Green Research Award

Project Details:

Project Title	Bio-fuel Production under Oman Condition
Location of Project	Agricultural Experiment Station, College of Agricultural

& Marine Sciences, Sultan Qaboos University

One Line Description of Project

Use of wasteland and non-potable water to grow environmental friendly plants and produce bio-fuel that can help in greening and support the economy

Effectiveness

What were your goals?

The main objective of the whole project is to:

1. To perform preliminary research studies on Jatropha for determining its ability to grow under water, heat and salt stress conditions.
2. Conducting a preliminary research to assess the possibilities of Jatropha to provide Bio-fuel.

The secondary objectives were to:

1) Investigate the ability of this plant to grow and survive under Oman heat, water and salinity stress conditions.
2) Evaluate the quality of bio-fuel.
3) Study the ability of this plant to improve wastelands.
4) Study the possibility of using non potable water such as saline water, grey water and treated waste water and release the pressure on freshwater.
5) Evaluate the growth of this plant with minimum application of organic fertilizers and avoid in-organic fertilizers.

How have you measured your success?

That was proven through:

1) An excellent growth and production of plant seeds,

2) Low quality of waters were used without any environmental problems,

3) High amount of freshwater was saved,

4) The wastelands were used with perfect plant growth and its improved the quality of the soil,

5) A scientific paper from this project is already published (**Ahmed Al-Busaidi** and Mushtaque Ahmed. 2011. A Short Communication on Growing Jatropha in Oman. International Journal of Environmental Studies. Volume 68, NO. 1: 25 – 29).

6) Good growth of this plant mean high CO_2 consumption which was absorbed by plant (good for environment),

7) Analysis for bio-fuel quality is in progress,

8) The project is also covering other plants that can tolerate heat, water, salinity stress conditions and can be used for land greening, food production for human and animals, and biofuel production.

Innovation & Creativity

How were innovative methods, strategies or ideas applied?

The seeds of this plant were imported. Wasteland (rocky and saline) was selected. Treatments of heat stress, water deficit and salinity stress were applied with zero use of pesticides or any chemical applications. Plant parameters were measured and any up-normal growth was monitored and recorded. Soil and plant were analyzed. Seeds analyses are still in progress but preliminary measurements showed good results. Moreover, the preliminary results were compared to the international standards and showed a positive sign.

Impact

How has the project/initiative/work motivated others to contribute to a greener Oman

This plant can give many advantages such:

1) It will turn many bare soils to green lands.
2) This plant cannot be eaten by animals so If it is grown in the edge of the land, it will work as a fence and protect the inside or domestic plants.
3) If the growers are interested in this plant, they can harvest the seed and get biofuel from it.
4) The husk of the seeds can be used as a fertilizer for edible crops so it will improve the fertility of the soil.
5) It gives option to save fresh water and use non-potable waters. Otherwise it can be irrigated by low amount of fresh water. Moreover, if the plant is not irrigated, it will survive but the leaves will fall down.
6) The whole plant has many medical applications.
7) If the plant grown in a big scale, it will provide jobs, improve the income of the grower and support country economy.
8) The plant has the ability to absorb high amount of CO_2.

9) In good growth, the place will be green and plant will produce flowers.
10) Plant waste can be used as a fertilizer or cooking purposes.

It can be concluded that, the approach of small scale Jatropha production for local oil use offers additional advantages. First, as an additional crop to the current set of farmers' activities, applicable in different cropping systems, farmers can diversify their income sources. Second, Jatropha produces woody by-products such as pruning waste and fruit hulls which are useful as combustible, which will reduce pressure on remaining forests and woodlots. Third, planted as a hedge Jatropha can be used as a living fence, to exclude browsing animals for ecological restoration or food crop protection because it is unpalatable to livestock. Fourth, Jatropha can also be planted in contour hedgerows to reduce soil erosion and to improve soil quality in degraded ecosystems. Finally, locally organized oil extraction will keep seed cake, which is useful as combustible or as a soil amendment, available for the local farmers, which is more difficult in centralized processing setups, often used for large scale projects.

Originality and Leadership

How has the nominee demonstrated vision, foresight and persistence?

It is an original work and first time to be applied in Oman. Appling this work in many places will give so many advantages to society and the whole country. Bio-fuel from Jatroph plant is already extracted and used in Europe and work like this project is very popular in India and many people are involved in this project. The reference is Centre for Jatropha Promotion & Biodiesel: www.jatrophabiodiesel.org.

Continuity & Sustainability

How sustainable is the initiative carried out?

Since this plant can survive under hot and drought conditions so it will improve the surrounding conditions. In case of no rainfall, the plant will lose its leaves and will stay alive until its get water. It is a good technique in saving water under harsh conditions. Moreover, this plant can absorb high amount of CO_2 so it is environmental friendly. If this project can be applied in large scale, many industrials products can be produced from it.

Explain how it will be effective in the long term:

The outcomes of this study will be far reaching. The rapidly disappearing saline lands with almost seawater quality irrigation water can be revived and stopped from changed land use that is resulting in

appearance of residential and commercial buildings on the agricultural lands that are already limited in the country. Thus, a great loss to the natural land resources of the country can be at least minimized if not stopped totally. These, lands can be brought under agriculture again but with newly changed economically attractive plants. As a result farmers/owners of such lands can be re-employed on their original lands once again. The family income will increase. Livestock, goat and sheep feeding on these fodders can be a fresh source of milk and meat. Some new industry (like oil extracting) can develop bringing new jobs and increased income to the young population.

Since this plant can grow under Oman conditions so it can be grown in Gulf countries.