

Seed and Fodder Production of Major Native Plants of Kuwait

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Introduction

The vegetation of Kuwait has been under pressure from many natural and human induced factors including war. Restoration measures are required to promote vegetation regeneration (Le Houerou, 2000). Native plants are key components of biological biodiversity, highly adapted to the local environmental and climatic conditions and most suitable for regenerating ecosystems. The diversity of plant species in the desert ecosystems provide important genetic source for restoration of the degraded ecosystems in Kuwait. There are 374 species identified in Kuwait that grow naturally during mild winter months (Omar et al., 2007). The native plant species provide seeds that can be harvested and grown under controlled environmental conditions to produce valuable seedlings of native plants. Native plants are also used for fodder, landscaping and greenery purposes. Some of the private farms in Kuwait conducted a research project with Kuwait Institute for Scientific Research (KISR) to develop the infrastructure and to initiate a moderate-scale operation for native plants production. The objectives of the project were: mass production of native seeds and plants for restoration of damaged natural habitat of Kuwait, landscaping; fodder production and conservation through utilization.

Materials & Methods

An area of 79,000 m² was planted with native grasses and shrubs from seeds collected at different locations in the desert of Kuwait. Farm established facility included: Nursery area for seedlings-2000 m²; shade house area-5000 m²; laboratory area-350 m³; seed processing room-400 m³; seed storage room- 200 m³; open field- no limit and irrigation by Reverse Osmosis (RO) water with an installed capacity of 375,000 gallons/day.

Results & Discussion

This work resulted in production of 45,000 native plants belonging to 10 species. Keystone species that were grown in large quantities included *Calligonum polygonoides*, *Farsetia aegyptia*, *Panicum turgidum*, *Pennisetum divisum*, and *Rhanterium epapposum*. Smaller quantities of the following species were also propagated: *Astragalus sieberi*, *Convolvullus oxyphyllus*, *Helianthemum lippii*, *Lycium shawii*, and *Salvia spinosa*. About 21,000 plants have been planted in the field to be used for seed/forage production; a further 24,000 are located in the greenhouse/shade house and can be used directly for restoration/greenery programs. Irrigation water usage was reduced from 50 to 90 %.

Conclusions

The project succeeded in standardizing germination & growth requirements of selected native species; established the production unit with all facilities under a research base – capacity of 1 million seedlings per year. Many native plants have been profitably demonstrated as high potential forages. Several grasses can be effectively used in garden and landscape designs. The native plant field itself was an excellent example of restoration success. However, major constraints were: labor intensive work; unexpected insects attack due to various reasons; on availability of seeds and planting materials; most of the plants were seasonal; climate decides the seed production in the nature; climate influences germination and growth; fractional germination and some seeds contain insects e.g. *Astragalus sieberii*.

References

- Le Houerou, H. N., 2000. Restoration and rehabilitation of arid and semiarid Mediterranean Ecosystems in North Africa and West Asia: A review-Arid Soil Research and Rehabilitation 14:3-14.
Omar, S. A., S. Zaman and Al Muttawa Y., 2007. Vegetation of Kuwait, 2nd Edition. KISR.161 pp.