Forage management in context of the farming system

Introduction

Different forage development program in the Middle east countries are already well accepted. E.g. use of the winter annuals oats/clover and improvement of communal cut and carry area with Stylo and molasses grass. *Leucaena* is widely grown, although management is sub optional.

Strategy

Emphasis should be promoting more strategy options and introducing a wider range of genetic materials, whilst allowing well established activities. Strategies and species need to be continually refined, and the ranking of importance of strategies will continually change. Strategies should be focus on use of leguminous species because of their roles in livestock nutrition and in stabilizing cropping systems. Species recommendations should continually change, in the light of local experience and availability of new genetic materials. Species recommended should mostly well adopt to low soil fertility. In the cut and carry system large quantity of nutrients are removed from the soil, and eventually these must be replaced by the addition of organic or inorganic fertilizer. Generally, use mixture to reduce risk of failure. And we need to familiarize farmers with the alternatives species.

Key strategy for implementation of forage development

- Over sowing: for the more production of forage, available land (Communal grazing areas, roadsides, landslides) should be sown with forage species.
- Forage should be raise on terrace risers

- Leguminous forage/cover crops should be promoted under citrus and other trees
- Under sowing/ relay cropping or intercropping of forage legumes in annual crops such as finger millet will be effective
- Hedgerows of multi-purpose tree legumes should be promoted.
- Communal cut and carry plots should be developing.
- Intensive individuals cut and carry plots should be established.

Terrace and bund improvement

1. Planting should be started on the upper terrace and should be continued to the edge of the field in downhill terraces.
2. As far as possible fallowing should be avoided.
3. All the operations should be done across the slope.
4. Minimum tillage and relay cropping should be practiced.
5. Over grazing should be avoided and maximum crop residue should be left to keep the ground well covered.
6. Safe disposal of water. Planted grass in waterways.
7. Manures and fertilizers should be applied.

Utilization of non- agricultural inclusions

In the small gullies, at the head of a gully, grasses and other herbaceous cover often hold the top few centimeters of the soil with a mass of fibrous roots. Woody plants and tap root species hold a thicker layer of soil than do the grasses. Gullies that are deeper than 0.5 m and that are growing both upstream and downstream need control measures at these critical points. A series of small dams are used to control gullies or large flows. Dams may be constructed from materials available at the site. After sedimentation and filling to a stable extent, extensive planting with suitable species.

Improvement of crop residues management

Mostly green grasses are available from June to September so crop byproducts play very important role.

Crop By products	Quantity (000 ton)	Percent
Rice straws	4400	59.8
Maize Stover	1800	22.4
Wheat straw	1200	14.3
Millet straw	240	3.0
Barley straw	43	0.5
Total	9843	

In general crop by products are inferior in quantity. They contain high fiber low protein.

How to improve quality:

(a) Treating with urea

(b) Ammonia treatment

(c) Maize Stover ensiling

(d) Urine treatment

These treatments increase the protein% and palatability. For the improved use of the byproduct it can be used by supplementing with high quality forage like clover and stylo etc.

Problem associate with crop byproduct improvement in Farmers Level:

(a) Lack of technical know how

(b) Cost factor

(c) Limited response to animals

(d) Lack of extension