Benha University
Faculty of agriculture
Agronomy department

New English Programs

Agri-business program
Level: 4 - Semester: 1
Time allowed: 2 hours

Forage production & pasture management

Final exam, January 2020

Answer the following questions (60 Marks)

First Question: (30 Marks)

1- What are the advantages of Egyptian clover as a forage crop?

2- Give reasons:

A. Alfalfa is considered the most important forage legume crops.

B. Egyptian clover is not fertilized with nitrogen.

C. Clover Miscawi variety gave four cuttings. While, Fahl variety produce only one cutting.

D. Fahl variety is given one irrigation. Meanwhile, Saidi variety is given 4 irrigations.

E. Barley is mixed with clover at planting.

F. Vetches are grown in Egypt chiefly in the governorate of Kena and Aswan.

G. Young sorghum plants are very harmful to feeding animals.

Second Question: (30 Marks)

1- Write about: Silage – Silage advantages over hay – Silage disadvantages – factors affecting silage quality – Silage additives – Systems of silage.

2- Define (10 only): Forage – Pasture - Forb – Herd–Biomass –Stand - increaser – Browse –Carrying capacity –Density – Drop band – Rotational pasture – Canopy.

3- Mention the available forms and deficiency symptoms of Potassium and Magnesium.

4- What are the activities which involved approved practices of pastures for sheep, beef cattle and dairy cattle animals?

With our best wishes

Benha University **New English Programs** **Agri-business program**

Faculty of agriculture **Level: 4**

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Model answer of forage production & pasture management

Answer the following questions (60 Marks)

First Question: (30 Marks)

1-What are the advantages of Egyptian clover as a forage crop?

1- High of nutrition value.
2- Rich of protein, vitamins (D, E and k), Ca, P and TDN.
3- Soil reclamation (improvement of their chemical and physical properties and biotic organisms.
4- It enriches the soil with organic matter as well as nitrogen.
5- Utilizing of soiling feeding, grazing, hay and silage.
6- Add to the soil about 45-90 kg N/fed.
7- Its straw used for animal feed.

2- **Give reasons:**

A. Alfalfa is considered the most important forage legume crops.

- Because alfalfa is tolerant to most of unsuitable climatic and edaphic factors.
- Alfalfa produces higher yields compared with other forages.
- Feeding value of alfalfa is very high; alfalfa contains high ratio of digestible protein, one feddan of alfalfa produces double amounts of protein than any other clovers and four times than corn silage. It also contains ten types of vitamins and is considered an important source of vitamin A.
- Alfalfa produces green forage crop along the year.
- It is converted to hay and silage without any lost in its feeding value or palatability.
- It is characterized with high palatability in comparison with other forage crops.
- It is the important crop for making mixtures with grasses and raises the feeding value and palatability of other crops mixed with it.
- Alfalfa fixes abundant amounts of nitrogen.
- The hay made from alfalfa may replace grains in feeding animals for along period.

B. Egyptian clover is not fertilized with nitrogen.

Nodule bacteria on its roots fix nitrogen from the atmosphere and supply the clover plants with this element.

C. Clover Miscawi variety gave four cuttings. While, Fahl variety produce only one cutting.

It makes a vigorous rapid growth, plants produce many basal branches, and yields much amounts of green food. Opposite of Fahl variety.

D. Fahl variety is given one irrigation. Meanwhile, Saidi variety is given 4 irrigations.

Because Fahl variety gave 1 cutting whereas, Saidi variety gave 2 cuttings.

E. Barley is mixed with clover at planting.

Mixed barley with clover produce forage mixture with high quantity and quality.

F. Vetches are grown in Egypt chiefly in the governorate of Kena and Aswan.

Because the climatic and edaphic factors is very suitable for it's grown.

G. Young sorghum plants are very harmful to feeding animals.
Because it is contain the toxic HCN acid.

Second Question: (30 Marks)

1- Write about: Silage – Silage advantages over hay – Silage disadvantages – factors affecting silage quality – Silage additives – Systems of silage.

Silage: is moist forage, stored in the absence of air and preserved by acids produced during ensiling.

– **Silage advantages over hay**:

- Lower field and harvest losses.
- Mechanization from harvest to feeding.
- Lower probability of weather damage and delays during harvest.
- Storage of properly ensiled, stable silages over long periods incurs only small nutrient losses.
- Flexibility fits many livestock feeding programs.

– **Silage disadvantages**:

- Bulky and heavy to harvest, haul, store and feed.

- Specialized equipment needed for harvesting, storing and feeding.
- Losses can be high if silage is not properly stored.
- Less marketable if not fed on the farm.
- High water content economically limits hauling distances.
- Must be fed soon after removal from the silo to minimize spoilage.

– Factors affecting silage quality:

- Sugar concentration and buffering.
- Dry – matter concentration.
- Chop length and processing.
- Packing density.
- Temperature.
- Air exposure.

– Silage additives:

- Non- protein nitrogen (NPN).
- Feedstuffs.
- Minerals.
- Acids.
- Microbial inoculations.
- Add dry matter to reduce moisture content.
- Add water to increase moisture content

– Systems of Silage:

- Large tower soils.
- Horizontal bunkers.
- Stacks on ground.
- Round bales stored in bags.
- Tube stack of bales under plastic.
- Individually "stretch wrapped".
- Chopped silage in long plastic bags.

2- Define:

☒ Forage: Herbaceous plants or plant parts fed to domestic animals (generally, the term refers to such material as pasturage, hay, silage, dehydrated and green chop in contrast to less digestible plant material known as "roughages"); to graze.

☒ Pasture: An area covered by forage plants and grazed by animals.

☒ Forb: Any herbaceous nongrasslike plants on which animal feed.

☒ Herd: An assemblage of animals usually of the same species.

☒ Biomass: The sum total of living plants and animals above and blew ground in an area at a given time. Expressed as weight/unit area as volume per unit of habit area.

☒ Stand: A group of plants growing together on a contiguous area.

☒ increaser: Plant species of original vegetation that increase in relative amount, at least for a time.

☒ Browse: That part of leaves and twig growth of shrub, woody vines and trees available for animal consumption.(V) To consume.

☒ Carrying capacity: Maximum stocking rate possible without inducing vegetation damage … vary farm according to fluctuation of production (sym., grazing).

☒ Density: Number of individuals per unit area.

☒ Drop band: A band of ewes that are giving birth or expected to give birth within few days.

☒ Rotational pasture: An area forages for few seasons then put into cultivated crops.

☒ Canopy: The vertical projection downward of the aerial portion of shrubs and trees, usually expressed as percent of ground so occupied.

3- Mention the available forms and deficiency symptoms of Potassium and Magnesium.

Potassium

a. Absorbed as K+ ion.
b.1-4% usually - 2% Average (Dry Weight).
c. Deficiency:

1- Edges of Leaves roll up and turn brown.
2- Light green color of plant.
3- Plant stunted – leaves smaller.
4- Plant lodges – diseases also.
5- Grain shriveled.

Magnesium

a. Absorbed as Mg++
b. Contains 1-2%.
c. Deficiency:
   1) Shows on younger leaves first.
   2) Leaves may be striped as in corn, veins dark green and light in between.
   3) Cotton – purplish – red leaves with green veins.
   4) Advanced stages – leaf turns yellow.

4- What are the activities which involved approved practices of pastures for sheep, beef cattle and dairy cattle animals?

-The activities which involved approved practices of pastures for sheep:

- Pasturing rangelands.
- Pasturing humid area.
- Extending the grazing season.

-The activities which involved approved practices of pastures for beef cattle:

- Getting the right pasture mixture.
- Managing for high carrying capacity.
- Extending the grazing season.
- Handling bloat.
- Practicing rotational grazing.
- Grazing native rangeland.

-The activities which involved approved practices of pastures for beef cattle:

- Determining feed requirements to meet goals for the herd.
- Determining what is needed for supplemental feed.
- Obtaining the most economical source of supplemental feed.
- Providing the proper levels of supplemental feed.
- Clipping when necessary to prevent seedhead development in grasses.

With our best wishes

Ahmed saad