

Sangam S.K.M College-Nadi

Year 12

Agricultural Science

Worksheet 2

Solution

WEEK 3

(Activity 1)

1. State one way in which farmers can ensure that tree crops are not affected by salt spray?

Cover cropping and wind breakers

2. Discuss the relationship between plants and animals in an aqua-forestry system?

Aqua forestry - various trees and shrubs preferred by fish are planted on the boundary and around fish ponds. As well as providing shade, the leaves of these trees are used as feed for fish while roots stabilize bunds.

3. State one reason why farmers practice thinning of healthy saplings in a plantation forest?

Trees which are crowded together are in greater competition for sunlight, nutrients and water. As a result, they tend to be less healthy and to grow less vigorously. The forest is 'thinned' by taking out a certain percentage of the trees. The remaining trees will grow faster, stronger and larger. Thinning also improves the growth of the forest's understory such as wildflowers and native weeds by increasing the amount of sunlight that reaches the forest floor. This growth provides more food and shelter for animals such as pigs, birds, bees and other wildlife. This type of harvest is typically referred to as a "pre-commercial" harvest since the costs associated with the forest management (road maintenance, harvesting, etc.) often equal or outweigh the money earned on the harvested trees for the landowners. These types of harvests result in fence post and pulpwood size trees, which are smaller in diameter than trees that would be made into lumber.

4. State one use of the slash which is produced during the logging process?

Slash is spread on the ground to facilitate the movement of logging machines and vehicles. It is then collected into heaps to minimise burning hazards and can also be used to produce wood chips or burnt as firewood.

(Activity 2)

1. State one defect which may occur in lumber during the drying process?

Defects which may have resulted during the drying process, such as split-ends and loose knots.

2. Explain natural causes of fires in plantation forests?

Combustible material to allow a ground fire to develop, there is little or no fire risk.

Dangerous and damaging plantation fires can only develop when fire is able to occur at ground level.

3. State examples of a germplasm collection? ***Germplasm collection - where samples of plant and animal tissue are preserved, as in seed collections stored in seed banks, trees growing in nurseries, animal breeding lines maintained in animal breeding programs or gene banks, etc. The collections can range from collections of wild species to elite, domesticated breeding lines that have undergone extensive human selection. They are then available for study and use in breeding programmes.***

4. State reasons why commercial farmers may not want to establish agro-forestry systems on their farms? ***Trees viewed as permanent, Long-term returns from trees difficult to predict, New systems often less readily adopted by farmers, Crop yield may decrease if system is not well planned and maintained, Requires education of farmers and help from extension agents, Commitment of national and local governments is necessary, Initial capital expenditure may be required.***

(Activity 3)

1. State advantages of the Riparian Forest Buffer agroforestry system?

Riparian forest buffers - forests are established along the side of streams. Their main function is to reduce the impact of pollution from agricultural operations, reduce river bank erosion, protect aquatic environments from nutrients and sedimentation, enhance wildlife and increase biodiversity.

2. State protective functions of agroforestry systems? ***combines production of multiple outputs with protection of the resource base, places emphasis on the use of multiple indigenous trees and shrubs, is particularly suitable for low input conditions and fragile environments, involves the interplay of socio-cultural values more than in most other land-use systems , is structurally and functionally more complex than monoculture.***

3. State advantages of using coir as an ingredient in the potting mixture for hibiscus plants?

Coir is a waste product of the coconut industry. It has physical properties much like peat but pH of about 6. It holds up to nine times its weight in water. It can have a high salt content so should be washed in fresh water before use.

4. Identify causes of abscission in harvested flowers?

Abscission – in this natural process, plant parts fall off due to dehydration, heat, excess movement, overcrowding and the buildup of ethylene gas. This can be prevented by keeping the environment cool, careful packaging of plants, providing moisture for the plants, minimizing the movement of the plants during transport and maintaining adequate aeration to minimize the buildup of ethylene gas.

(Activity 4)

1. State one reason why farmers harvest fruit as soon as they are mature?

Insects lay eggs in the fruit so that the larvae can hatch when the fruit is ripe and have a food supply. Bats, birds, rodents and insects will detect and eat fruit as they ripen. To minimize loss, farmers pick the fruit when signs of maturity appear

2. Outline ways in which farmers can minimize the bruising of fruit, like pawpaw, during harvesting?

Many fruit have soft skins and easily bruised flesh so fruit must be harvested with care. Some farmers simply shake the fruit off the trees onto a tarpaulin. For the picking of individual or clusters of fruit, the fruit must be held and twisted until the stalk breaks. The picker may hold and harvest fruit with: hands, twister fruit picker, telescoping pole pruner and fruit picker basket.