

Sangam S.K.M College-Nadi

Year 11

Agricultural Science

Worksheet 1

Solution

WEEK 2

1. Describe one way in which a farmer would address the challenge of soil nutrient deficiency.
Application of fertilizing materials (organic if possible)
2. Define the following terms;
 - a. Soil degradation *loss of productive capacity of a soil which is the result of destructive processes accelerated by men.*
 - b. Field trial
an experiment conducted in real life setting.
 - c. Value adding
processing a product so that it can be sold at a higher price.
 - d. Zoonosis
The possibility of the spread of diseases from livestock to humans and vice versa.
 - e. Biodiversity
the variety of life in the world or in a particular habitat or ecosystem
 - f. Shelf life
the length of time for which an item remains usable, fit for
3. State one reason of randomizing the treatments in while conducting field trial.
*The purpose of randomizing the locations is to avoid biasing the results.
Randomization process is the distribution of treatments equally in a experiment.*
4. ‘To determine the solution most suitable for implementation on a farm, farmers are encouraged to conduct field trials’. State and discuss five importance of conducting field trials.
Reliable answers, site specific, understandable, repeatable and comparable.
5. Differentiate between variable and treatment in relation to field trial.
Variable - any factor, trait, or condition that can exist in differing amounts or types [e.g. mulching] and Treatment [T]- the amount of the variable tested by the trial e.g. [type of mulching material]
6. **All trial plots must have guard rows.** Discuss one importance of planting guard rows when conducting field trials.
To minimise sources of error, all activities carried out on the trial, must be identical and synchronized including clearing, tilling, planting, weed control, fertilizer application, hilling, staking, collecting data. Only the variable being tested will differ and is called the treatments
7. When is the guard row planted?
These are rows of the same crop planted a week before the experiment to “guard” the crop from disturbances like pests, theft etc.
8. Explain Randomized Complete Block Design [RCBD].
The two cornerstones of the RCB design are replication (i.e., repetition) and randomization. Replicate each treatment a minimum of three times. Although four or five treatments are better, the statistical advantage gained is successively smaller with each added replicate. On

sloping land, position plots down the slope, not across. Each treatment must be included once in each block of replications. The treatment locations must be randomly assigned to plots within the block. This design is recommended for field trials conducted in schools.

9. Explain one reason why farmers are encouraged to process **raw agricultural products** produced on the farm. *Farmers are encouraged to look at ways of adding value to and prolonging the shelf life of raw products. Most agricultural products are processed in a variety of ways from the time they leave the farm till the time they reach consumers. In general, adding value is the process of changing or transforming a product from its original state to a more valuable state.*
10. State one way in which the **shelf life** of raw commodities produced on farms is **reduced**.
 - i) *enzyme action – natural substances which cause ripening and then decay.*
 - ii) *microbial spoilage – the spoilage caused by bacteria, yeasts and moulds..*
11. Differentiate between **flora** and **fauna**. Provide examples for each.
Flora - All the plants of a particular region, habitat, or geological period. Fauna - all of the animals of a particular region, habitat, or geological period
12. State one reason why plant products, like **peanuts**, are **blanched** before canning. **Removing water from food preserves nutrients and discourages the growth of bacteria, yeasts, and moulds. Often salt is added to food to remove moisture prior to drying.**
13. Differentiate between endemic and exotic species.
The endemic species include flora and fauna which live on land, in fresh water and also in the marine environments. They reflect the rich diversity which is a treasure to the country. Fiji has also adopted many exotic species which have acclimatised well and become a part of our flora and fauna, many of them introduced as crops, livestock or for ornamental purposes. Some examples of this are goats, mynah, tilapia, water hyacinth, rice and dumb cane.
14. Discuss three importance of safeguarding the biodiversity of Fiji.
Safeguarding biodiversity is vitally important to Fiji as we are heavily reliant on agriculture and our natural environment. New pests can not only devastate our food security, but can also damage agriculture, horticultural production, forestry and tourism and affect trade in international markets. The economic consequences of failing to protect Fiji are dire: it could affect our employment opportunities, our human health and also our traditional lifestyle which is highly treasured. Biosecurity is the protection of the economy, environment, biodiversity and human health from the negative impacts associate
15. State the aim of biosecurity authority of Fiji.
The prevention of the introduction and spread of pests and diseases is the responsibility of the Biosecurity Authority of Fiji which works under regulatory laws.
16. List and discuss any three services provided by the biosecurity authority of Fiji.
Provide information, inspection, quarantine services, pest and disease control and prohibition

Sangam SKM College – Nadi

Year 11

Agricultural Science

Week 1 – Activity Solution

1. Define soil porosity?
 - *Pore space refers to the volume of soil voids that can be filled by water and/or air.*
2. State 2 ways of improving soil structure?
 - *Proper tillage, limit traffic, breaking hard pan, organic matter, rotating crops, controlling erosion, growing grasses and legumes*
3. List three methods of determining soil texture?
 - *There are three methods used to determine the texture of soil: Feel, Ball and Ribbon and Ball Throwing methods are suitable for field testing a soil while the Pipette and Hydrometer methods are suitable for testing in the laboratory.*