

Daily Lesson Plan (DLP)

Topic. Plot your Plants.		Day :2
Grade: 4-5	Lesson Name: How will you install irrigation methods to best suit each crop?	Time :(60 Mins.)

Topic	How will you install irrigation methods to best suit each crop?		
Weekly key words	Natural circumstances, deep, shallow, basins, labour inputs, etc.		
Seating plan	<input type="checkbox"/> Individual	<input type="checkbox"/> Pairs	Group of 4
Skill development	<input checked="" type="checkbox"/> Reading <input type="checkbox"/> Reflection <input type="checkbox"/> Other (Specify)	<input checked="" type="checkbox"/> Writing <input type="checkbox"/> Illustration	<input checked="" type="checkbox"/> Discussion <input type="checkbox"/> Presentation <input type="checkbox"/> Collaboration <input type="checkbox"/> Observation <input type="checkbox"/> Research

Objectives: ➤ The students will be able to:	Learn about how to install irrigation methods to best suit each crop
Teaching Resources:	Laptop/multimedia, pictures, writing board, notebook, piece of paper, pen/pencil, plants, worksheet
Teaching Learning Strategies	
Introduction: 5 mins. Start the lesson by asking the students to recall and share the lesson they have previously discussed in the classroom. Listen to their responses and give feedback. Methodology: (20 mins.) TYPE Of CROP Paddy rice is always grown in basins. Many other crops can also be grown in basins: e.g. maize, sorghum, trees, etc. Those crops that cannot stand a very wet soil for more than 12-24 hours should not be grown in basins. Furrow irrigation is best used for irrigating row crops such as maize, vegetables and trees.	

Border irrigation is particularly suitable for close growing crops such as alfalfa, but border irrigation can also be used for row crops and trees.

REQUIRED DEPTH OF IRRIGATION APPLICATION

When the irrigation schedule has been determined it is known how much water (in mm) has to be given per irrigation application. It must be checked that this amount can indeed be given, with the irrigation method under consideration.

Field experience has shown that most water can be applied per irrigation application when using basin irrigation, less with border irrigation and least with furrow irrigation. In practice, in small-scale irrigation projects, usually 40-70 mm of water are applied in basin irrigation, 30-60 mm in border irrigation and 20-50 mm in furrow irrigation. (In large-scale irrigation projects, the amounts of water applied may be much higher.)

This means that if only little water is to be applied per application, e.g. on sandy soils and a shallow rooting crop, furrow irrigation would be most appropriate. (However, none of the surface irrigation methods can be used if the sand is very coarse, i.e. if the infiltration rate is more than 30 mm/hour.)

If, on the other hand, a large amount of irrigation water is to be applied per application, e.g. on a clay soil and with a deep rooting crop, border or basin irrigation would be more appropriate.

The above considerations have been summarized in Table. The net irrigation application values used are only a rough guide. They result from a combination of soil type and rooting depth. For example: if the soil is sandy and the rooting depth of the crop is medium, it is estimated that the net depth of each irrigation application will be in the order of 35 mm. The last column indicates which irrigation method is most suitable. In this case medium furrows or short borders.

The sizes of the furrows, borders and basins have been discussed in the previous chapters. The approximate rooting depths of the most Important field crops are given in Volume 4.

LEVEL OF TECHNOLOGY

Basin irrigation is the simplest of the surface irrigation methods. Especially if the basins are small, they can be constructed by hand or animal traction. Their operation and maintenance is simple

Furrow irrigation - with the possible exception of short, level furrows - requires accurate field grading. This is often done by machines. The maintenance - ploughing and furrowing - is also often done by machines. This requires skill, organization and frequently the use of foreign currency for fuel, equipment and spare parts.

Activity: 30 mins

SELECTION OF AN IRRIGATION METHOD BASED ON THE DEPTH OF THE NET IRRIGATION APPLICATION

Soil type	Rooting depth of the crop	Net irrigation depth per application (mm)	Irrigation method
Sand	shallow	20-30	short furrows
	medium	30-40	medium furrows, short borders

Loam	deep	40-50	long furrows, medium borders, small basins
	shallow	30-40	medium furrows, short borders
	medium	40-50	long furrows, medium borders, small basins
Clay	deep	50-60	long borders, medium basins
	shallow	40-50	long furrows, medium borders, small basins
	medium	50-60	long borders, medium basins
	deep	60-70	large basins

Short, level furrows - also called furrow basins - can, like basins, be constructed and maintained by hand. Borders require the highest level of sophistication. They are constructed and maintained by machines. The grading needs to be accurate. Machine operation requires a high level of skill, organization and usually foreign currency.

PREVIOUS EXPERIENCE WITH IRRIGATION

If there is no tradition in irrigation, the most simple irrigation method to introduce is basin irrigation. The smaller the basins, the easier their construction, operation and maintenance.

If irrigation is used traditionally, it is usually simpler to improve the traditional irrigation method than it is to introduce a previously unknown method.

REQUIRED LABOUR INPUTS

The required labour inputs for construction and maintenance depend heavily on the extent to which machinery is used.

In general it can be stated that to operate the system, basin irrigation requires the least labour and the least skill. For the operation of furrow and border irrigation systems more labour is required combined with more skill.

Wrap up (5mins.): Wind up the lesson by asking the students randomly to share their findings.

Home Assessment:

The students will do the worksheet as homework.

Worksheet

Lesson Evaluation:

- Teacher was able to accomplish all aspects of the lesson well ☐

- Teacher was not able to do warm up activity ☐,
- develop lesson plan well ☐,
- do the learning activity ☐,
- do wrap up ☐,
- accomplish lesson objective ☐,
- manage time well ☐,
- manage class well ☐

Worksheet Day

Name: _____

Class: _____

Topic: Plot the Plants

Subject: Science

1. Write down different types of technology for irrigation method:
