Adapt from Flood Irrigation to Furrow Irrigation

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Objectives

Empower farmers with training of crop/irrigation management for wheat, barley, and vegetables. Farmers will acquire the skills to make crop management decisions by themselves based on an understanding of the water-use-efficiency and economy of their fields.

Activities

Train-the-Trainer program for Agricultural Extension Staff on wheat, barley and vegetables, through conducting demonstration trials at local agriculture extension centers across the provinces.

Expected outcomes / impacts

Extension staff will have the capacity to train farmers in agronomic practices. As a result of the training, farmers will be empowered in agronomic knowledge and skills to improve crop yield which will increase farmers' income and quality of life.

Disadvantage of flood irrigation

- Old irrigation method which requires a large volume of water
- Inefficient method, about 60% of the water is wasted and does not get used by the crops
- A large part of the wasted water can not be reused due to massive loss via evaporation and transpiration
- Flood irrigation is a major problem resulting in low grain yield and soil salinity
- Creating crust problem on the soil surface

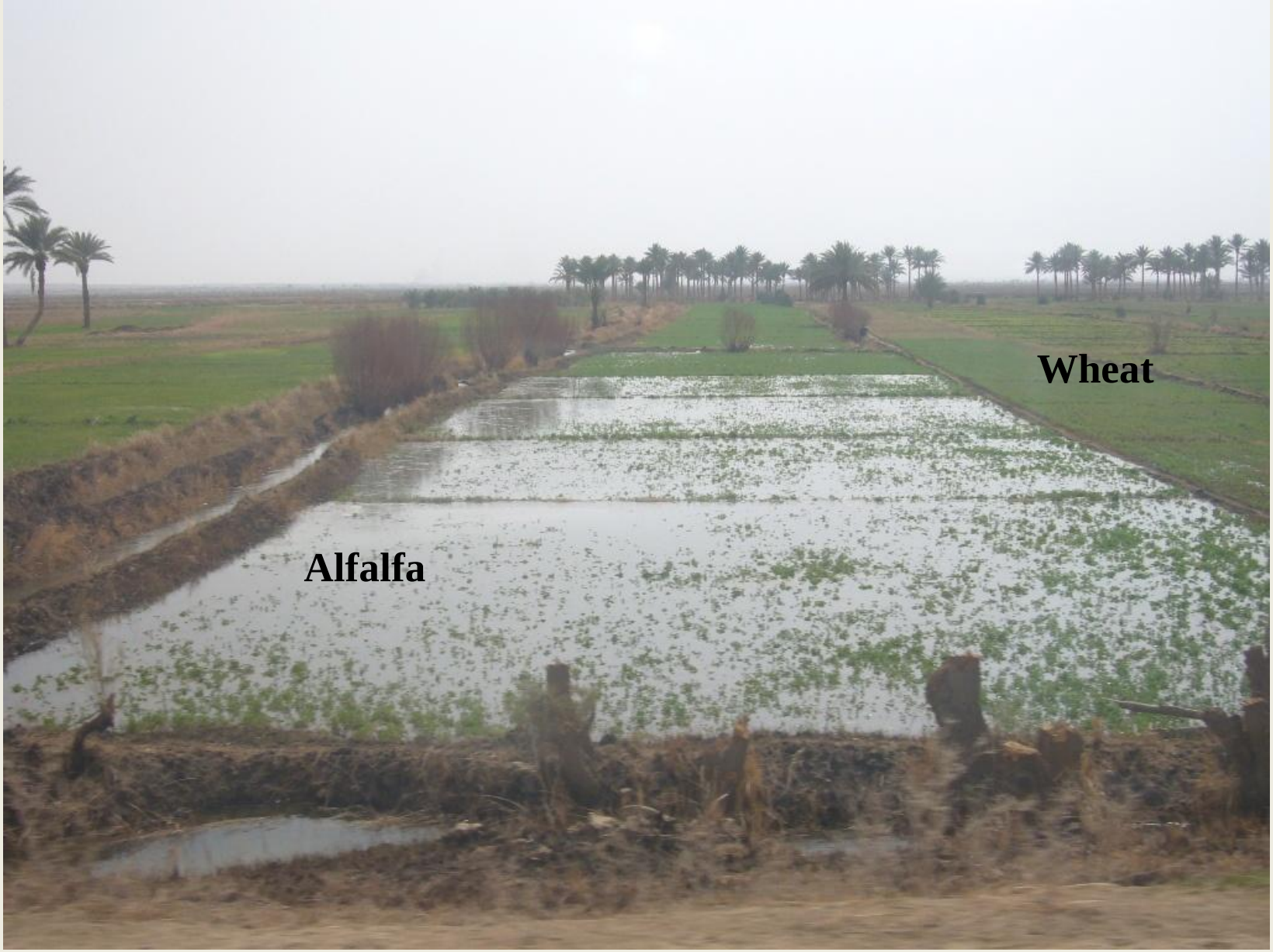
Improper seedbed preparation

Conventional poor ridge cultivation

Broadcasting seed on flat land followed by flood irrigation

Flat planting with machine in a dry seedbed in December in Anbar province. Later on, followed with flood irrigation.

Traditional flat planting with flood irrigation



Flood irrigation can result in low potential water use efficiency and inefficient use of nitrogen.

Flood irrigation will cause high soil evaporation and soil salinity.

A large amount of flood irrigation water is wasted because it runs off the edges of the fields.

Flood irrigation is the method most widely used in date palm farming. Farmers may switch to drip irrigation for more efficient use of water.

Flood irrigation results in high water evaporation from the soil and the accumulation of surface salt deposits.

Advantages of furrow irrigation

- Water flow through narrow furrows between the rows of crops
- Furrows provide better on-farm water management and requires less water than flood irrigation
- Less soil evaporation and salt deposits

Prepare land for furrow irrigation

Crop: Cereals (wheat & barley); Legume (lentil, chickpea, & beans); and forage (alfalfa).

- Disc plough in the summer (July – September)
- After rain in late October or early November disc harrow or ducksfood cultivator
- Ducksfood cultivator with wide ridge (furrow) , row spacing between ridge is 48 cm (slides # 18 & 19)
- broadcast seed & fertilizer by hand over ridge
- subsequently the ridges are split with a second run of the same implement

Local cultivator suitable for furrow opener with row spacing at 48 cm

Furrow irrigation: Each furrow is at 48 cm wide, have equal dimensions and in order to guarantee that the water is distributed equal throughout the whole field.

Improper ridge planting, wide furrow over 70 cm

Flat planting with traditional flood irrigation

Furrow irrigation: water flow through narrow furrow between the rows