

Certificate Course on Participatory Irrigation Management (PIM)

Module 6- Water requirement of crops and efficient irrigation methods

Topic 6.1 – Factors affecting water requirement of crops.

Topic 6.1

Factors
affecting water
requirement of
crops

Topics of Module 6:

- 6.1 Factors affecting water requirement of crops
- 6.2 Critical stages of crops and crop water requirement
- 6.3 Computation of irrigation time in crops
- 6.4 Prevalent irrigation practices and their water losses and efficient irrigation methods

We generally see that crop water demand varies according to varying seasons. It differs from crop to crop at also different growth stages of crops. Let us see what the causes of these variations are?

In fact, the crop water requirement is dependent on following factors,

1. The climate
2. The type of crop

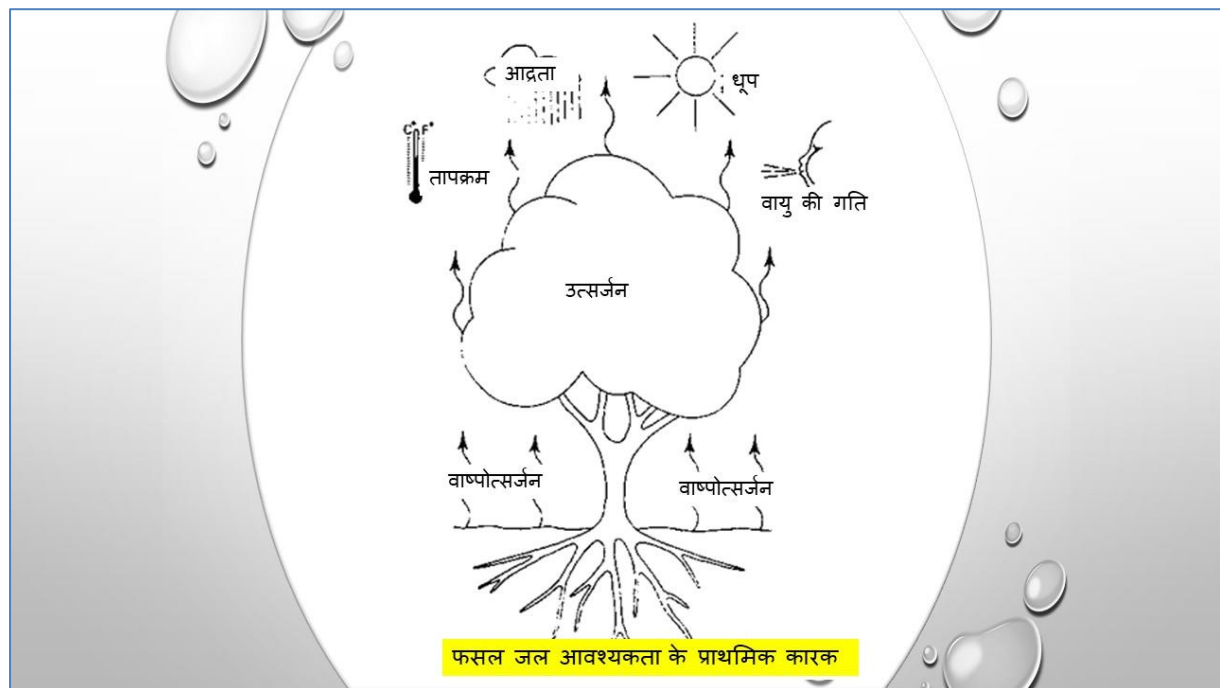
3. Crop duration and crop stages

4. Type of soil

We will discuss each point in detail below:

1- Climate:

Figure-1 Climatic factor



Crops' water requirement varies according to climatic factors and developing stages. As we observe in summer season hot and dry winds increase the evaporation process resulting in increased water demand whereas in rainy season temperature & wind speed being the same but due to more humidity water demand remains lower.

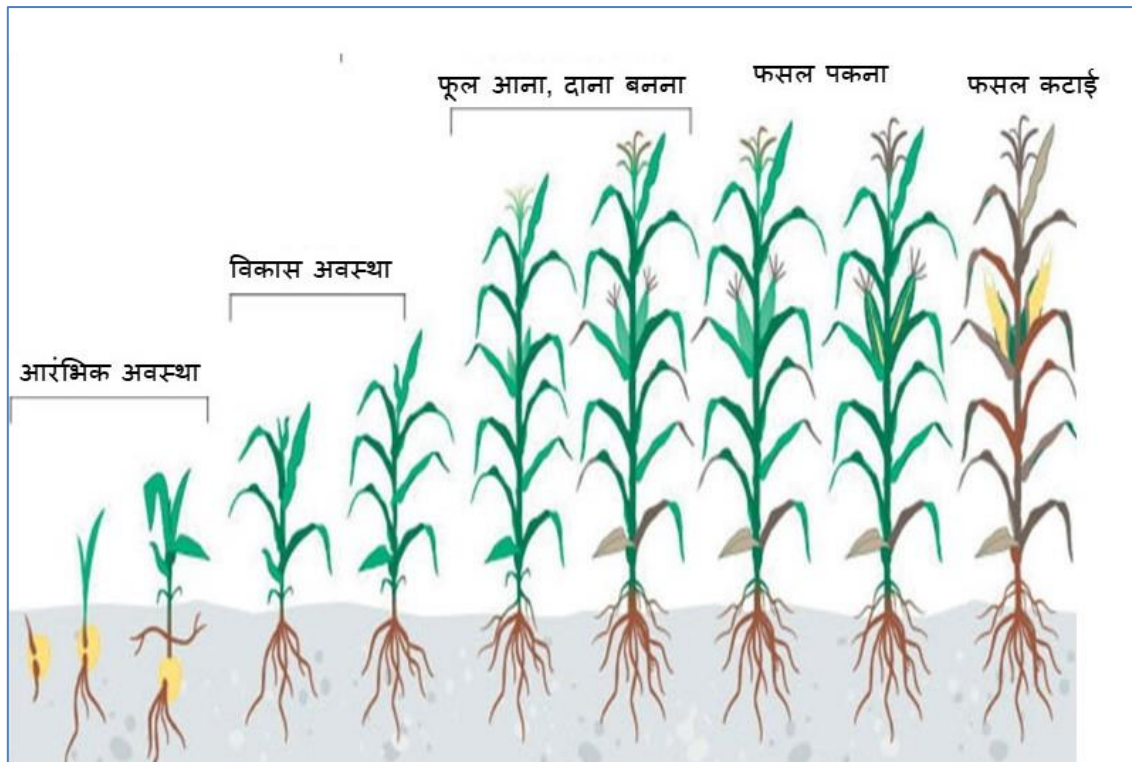
2- Type of Crop:

In similar climatic conditions different crops exhibit different water requirement. For example, in kharif season maize crop requires less water than of rice. Also, in rabi wheat crop requires more water than of lentil or mustered or gram.

3- Crop duration and crop stages:

Crops of lesser duration require lesser water in comparison to long duration crops. Water demand varies according to stages of crops, such as root initiation stage, flowering stage, and dough stage etc.

Figure-2 Various stages of crop



4-Type of soil:

Light soils, like sandy soils, have lesser water holding capacity hence require frequent irrigations of lesser depth, because meeting plant demand for lesser period. Heavy soils like clay can hold more water which met the plant demand for a longer period, therefore require irrigations of lesser depth, because meeting plant demand for lesser period. Heavy soils like clay can hold more water which met the plant demand for a longer period, therefore require irrigation less frequently.

Self-Experiment:

Which type of soils require more irrigation interval? (Sandy or heavy soils)?

Which type of soils require frequent irrigation? (Sandy or heavy soils)?