PRODUCTION STRATEGIES FOR CROPPING SYSTEMS

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Tillage

- **Red soils**

  Shallow tillage (up to 10cm depth) in red soils immediately after harvest of previous seasons crop to improve the infiltration

- **Black soils**

  Deep tillage (up to 25-30cm depth) immediately after harvest of previous seasons crop to increase the soil depth and control perennial weeds

Contour cultivation

Conduct all field activities like ploughing, tilling, seeding along the contour or across the slope to increase the yield by 20 to 35%

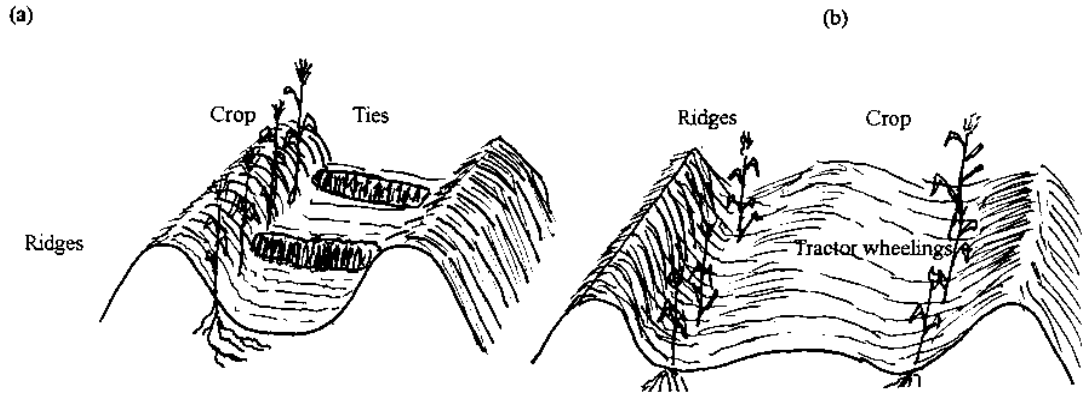
Compartmental bunding

Usually carried out in black soils –During kharif, complete primary tillage first followed by two harrowings. Construct compartmental bunds of suitable size on lands having slopes 2 to 3%



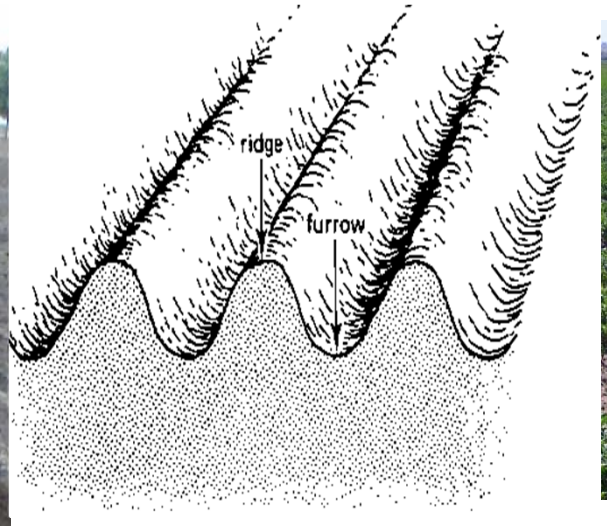
Tied ridges and furrows

Open the furrows at 60 to 70cm apart across the slope in black soils after the completion of primary tillage. Tie at regular intervals along their length. This increases yield by 30%



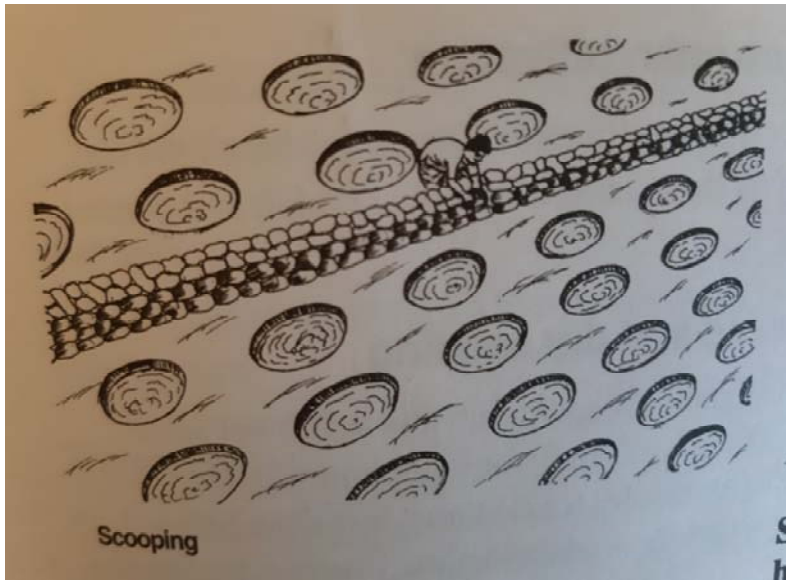
Broad furrows and ridges

Lay out the land into broad furrows and ridges across the slope in medium to deep black soils of 2% slope to conserve rainwater effectively and to increase the grain yields



Scooping

Form scoops during the second fortnight of July across the slope or along the contour to increase the infiltration rate and to reduce the erosion. Revive the scoop after each rain for better infiltration.



Mulching - Vertical mulching

Opening trenches of 30cm depth &15cm width across the slope at vertical intervals of 30cm & stuffing crop stubbles vertcally in these trenches. These guide run off water to subsoil layers

Mulching - Surface mulching

Opening ridges and furrows at suitable length prior to sowing. Perform sowing in a furrow and break the ridges during first interculturing and apply crop residues between the rows to reduce evaporation and improve water intake

Intercultivation

Frequent deep intercultivation operations break the soil, help in closing the cracks, create dust mulch and control weeds

Seed hardening and dry seeding

Seed hardening refers to the technique of subjecting seeds to 2-3 cycles of soaking with appropriate chemical solution and drying

Dry seeding is the technique of placing the hardened seeds in a dry soil. It is practiced when delayed rain is forecasted

Treat the seeds with 0.2% calcium chloride for eight hours and subsequently shade dry till it attains less than 10% moisture content for seed hardening. Practice dry seeding.

Seed hardening

Dry seeding

MANAGEMENT PRACTICES FOR EARLY SEASON DROUGHT

Land configurations

Formation of tied ridges &
broad furrows and ridges

Crop management

Seed hardening and Dry seeding
Transplanting - community nurseries
Resowing - instead of maintaining poor plant stand

Management of biotic stress

Insect pests diseases –
Chemical, biological and
cultural measures

MANAGEMENT PRACTICES FOR MID- SEASON DROUGHT

- Top dressing and foliar spray of urea at 2%
- Reduce the leaf area index by removing every alternate or third row of crop
- Close the soil cracks by repeated deep interculturing

MANAGEMENT PRACTICES FOR LATE SEASON DROUGHT

- Supplemental irrigation
- Use of surface mulches
- Avoid cracks by forming thin soil mulch using a blade hoe

The need for modifying and introducing new technologies for increasing and sustaining yield in dryland areas should be emphasized

To mitigate some of the abnormal weather situations, farmers should make changes in the normal cropping schedule and adopting technologies for getting some production in place of total crop failure