

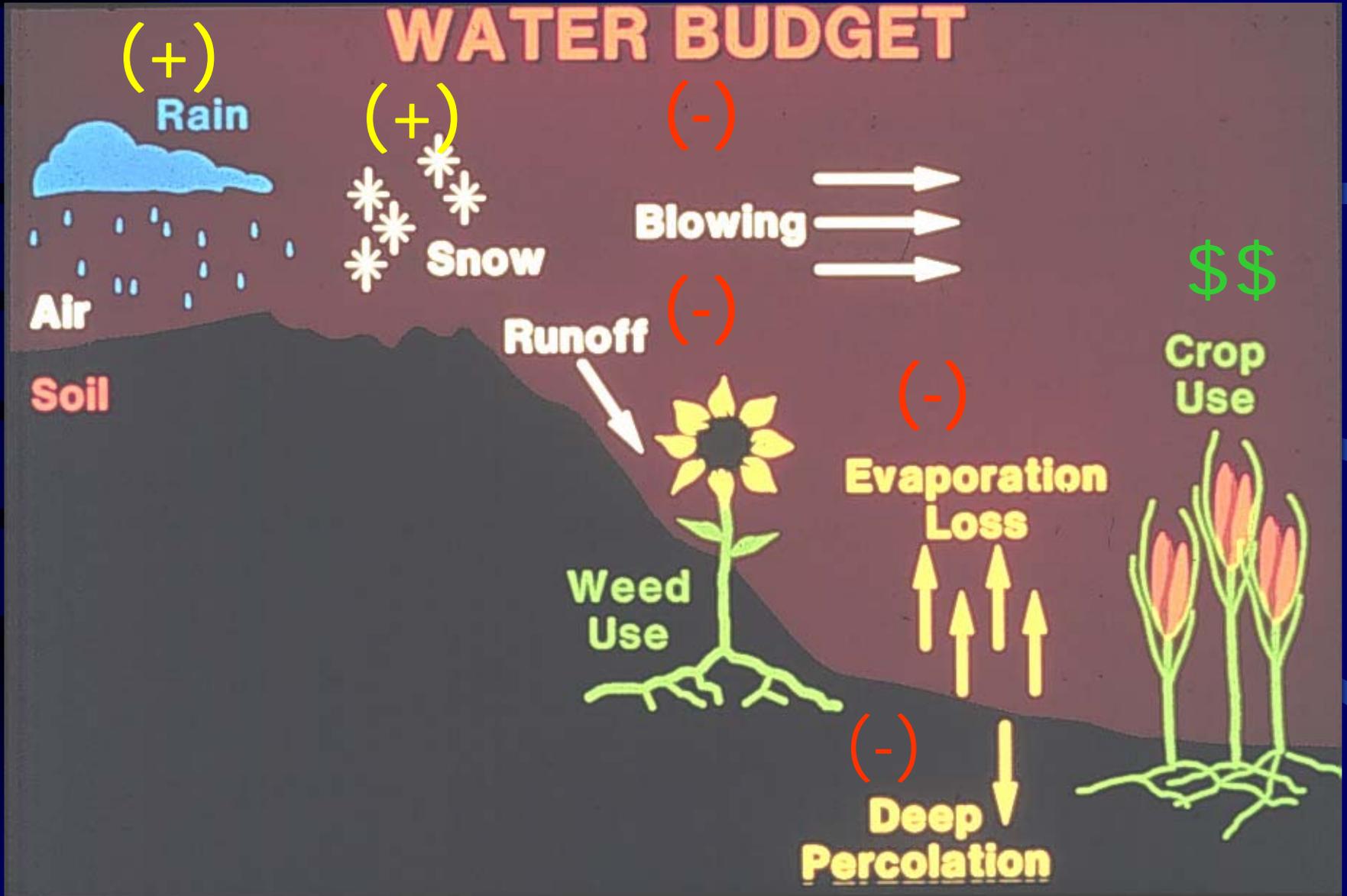
Dryland Farming: A Viable Option for Formerly Irrigated Land?

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Objective today

- Examine options for dryland farming in areas of CO that are now irrigated
 1. Dryland Experiments conducted - 20 years
 2. Review results from data base
 3. Generalize and apply results to Front Range of Colorado

WATER BUDGET



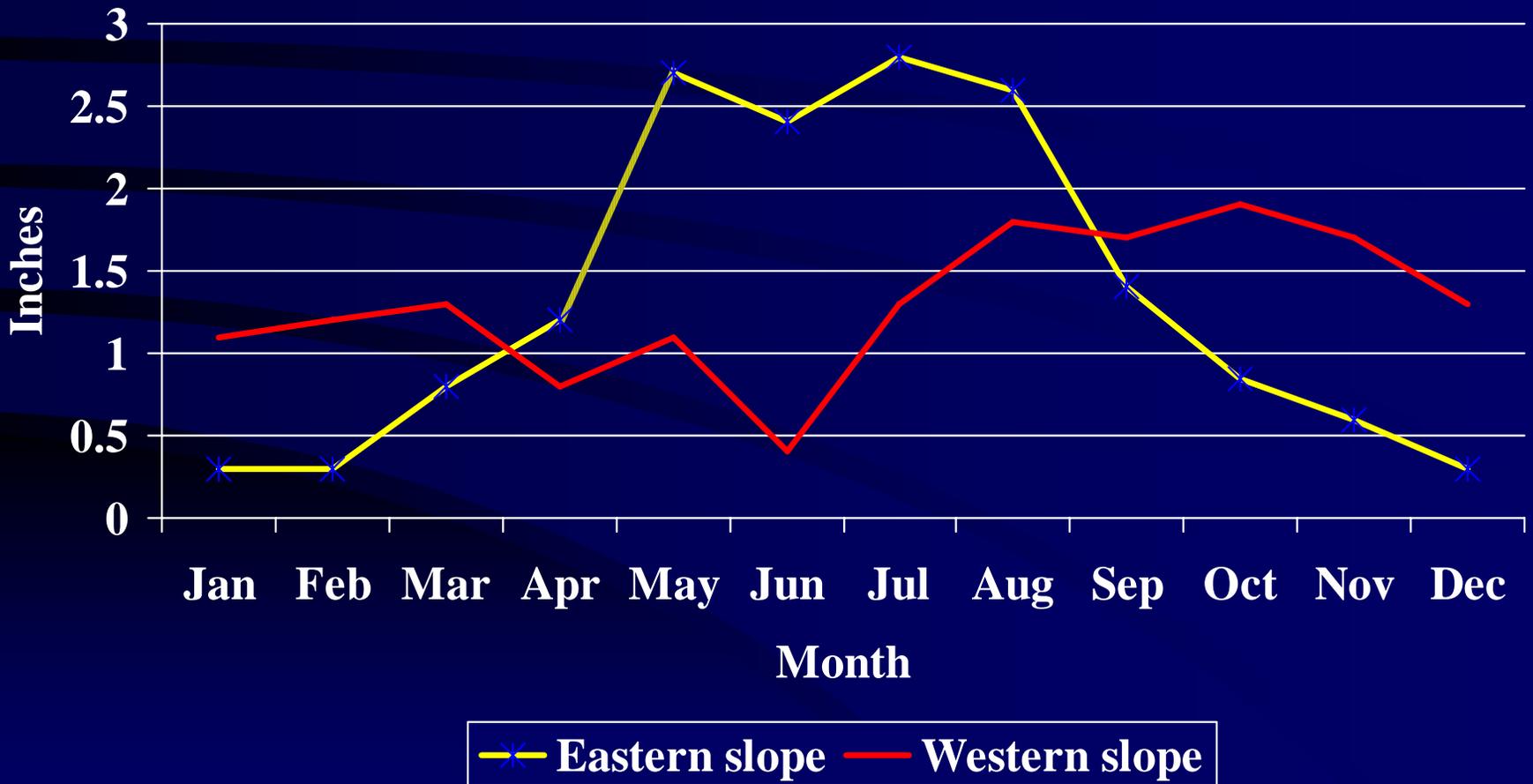
Limitations to Dryland Farming

- Lack of precipitation
- Precipitation distribution
- Precipitation form
- Soil properties
 - Water infiltration rate
 - Water holding capacity

Colorado Annual Precipitation

- ❖ Ranges from 8 to 18” per year
- ❖ Distribution
 - Summer dominant (Eastern Plains)
 - Uniform distribution (Western Slope)

Dominant Precipitation Patterns in Colorado



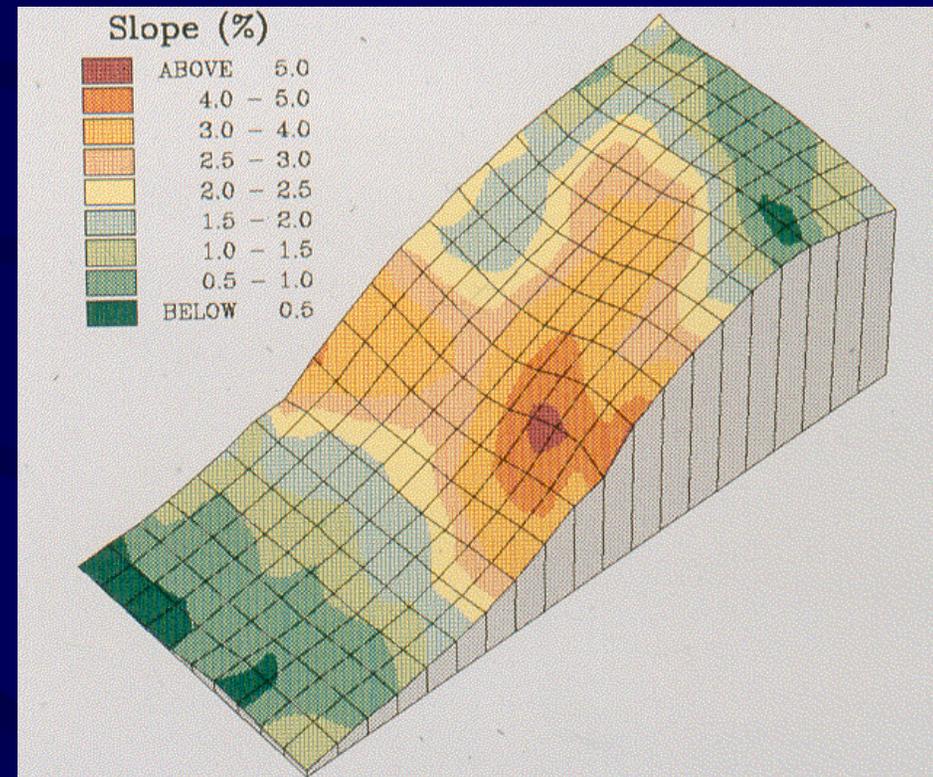
Field Experiment

Sterling, Stratton & Walsh

Diverse Cropping System

Herbicidal
weed control

No-till Planting



Slope Gradient

Cropping Systems

Wheat - Fallow (WF)

Wheat-Corn-Fallow (WCF)

Wheat-Corn-Millet-Fallow (WCMF)

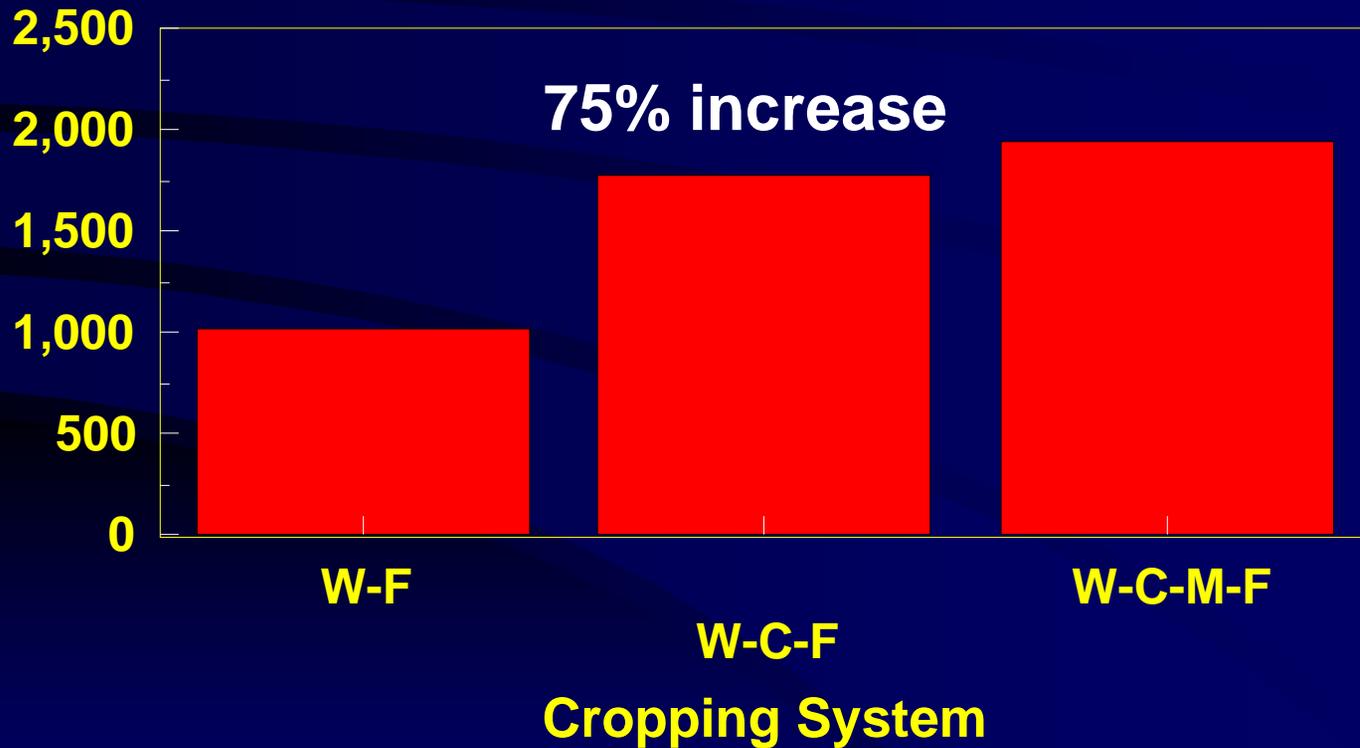
Opportunity (Continuous)

Perennial Grass



Annualized Grain Yield

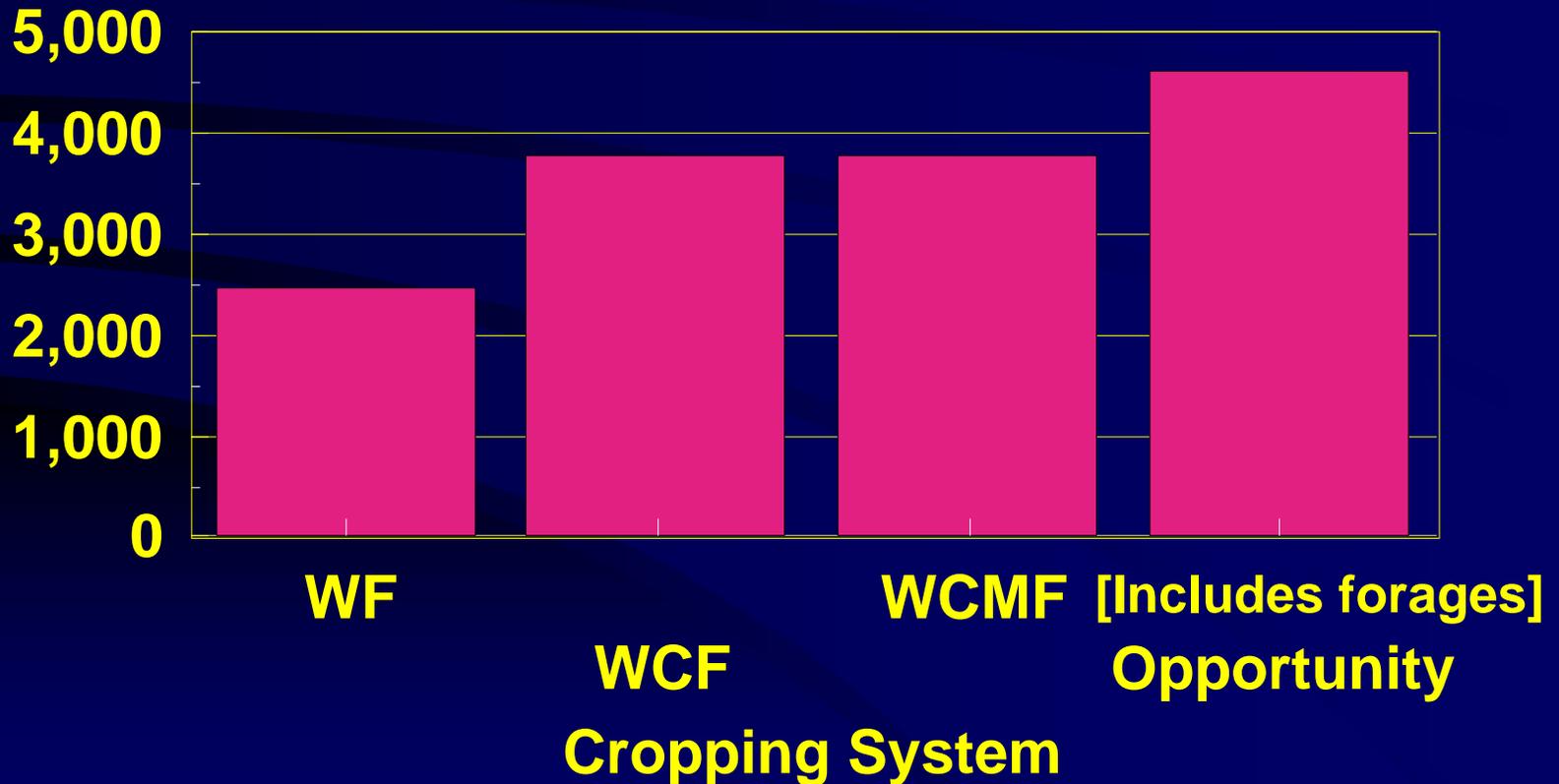
Grain Yield - Lbs/A



Annualized Total Biomass

Total Biomass; Lbs/A

90% increase





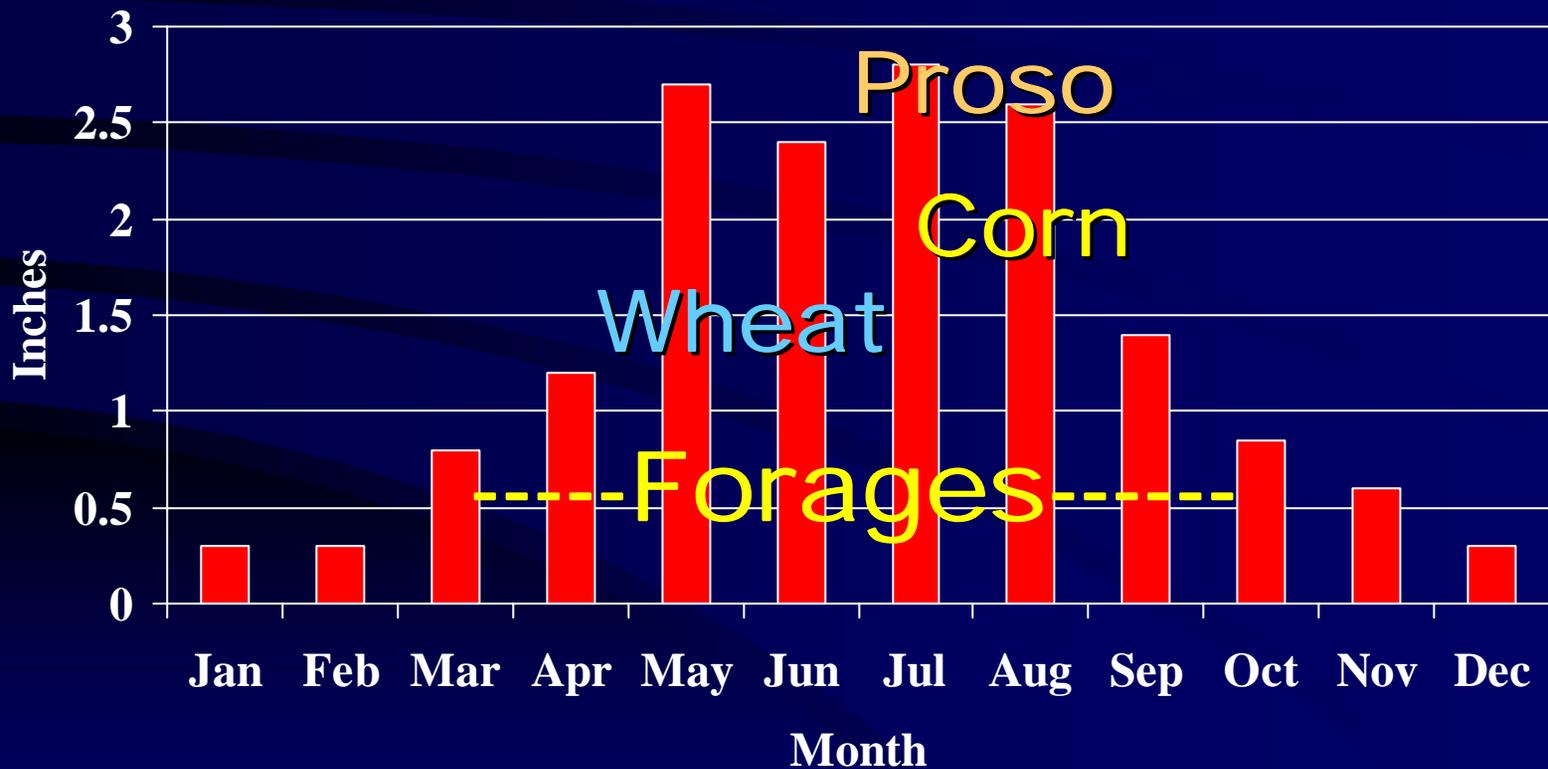
Residue Cover with No Tillage is Critical !!

A photograph of a dryland farming field. The foreground shows rows of young green corn plants growing in a field of dry, brown stubble. The rows recede into the distance towards a flat horizon. In the far distance, a tall water tower is visible against a clear, light blue sky. The image is framed by a dark blue background with decorative elements on the left and right sides.

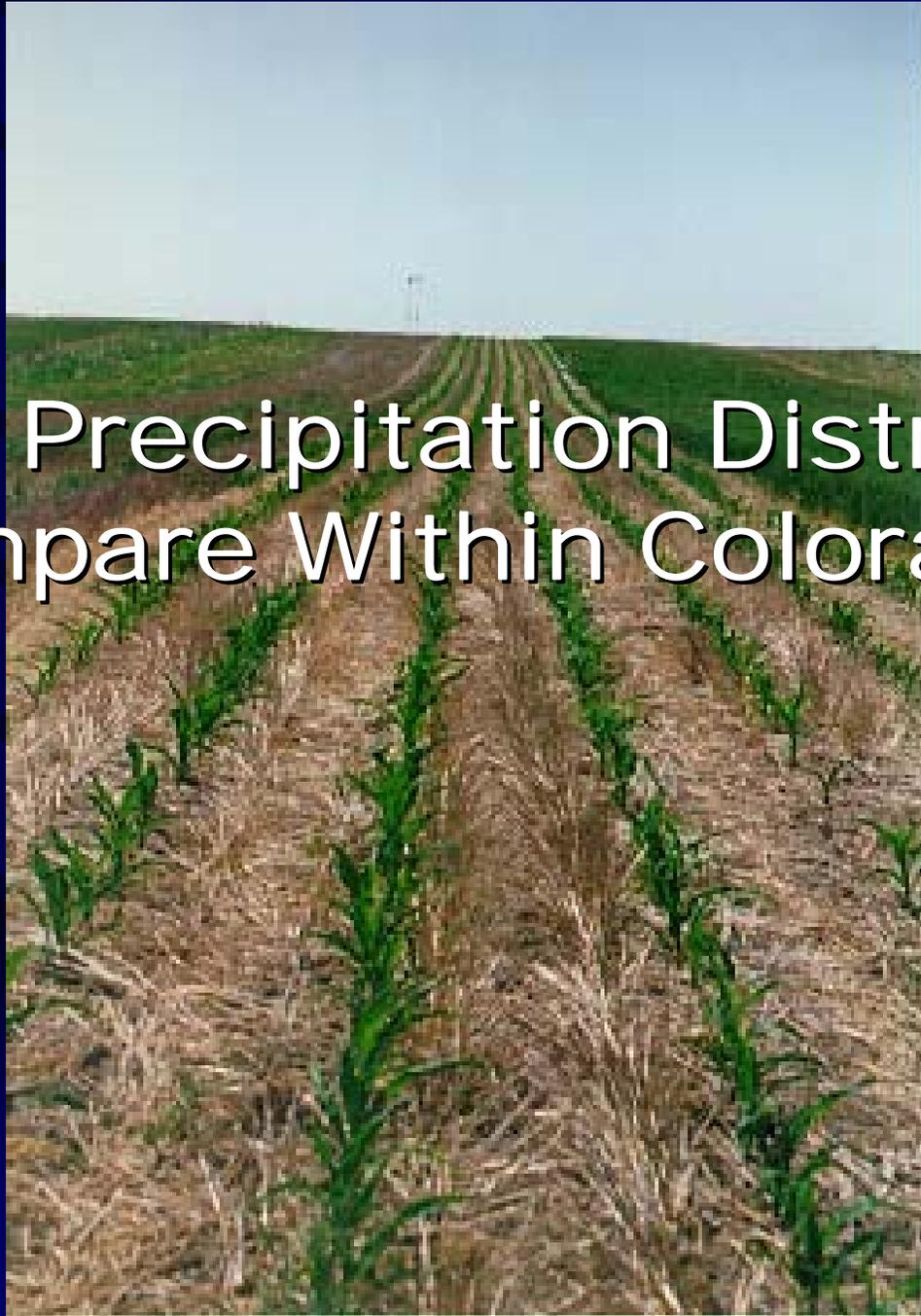
What Dryland Farming
Systems are Feasible
For the Front Range?

What Crops Will Fit
and Where?

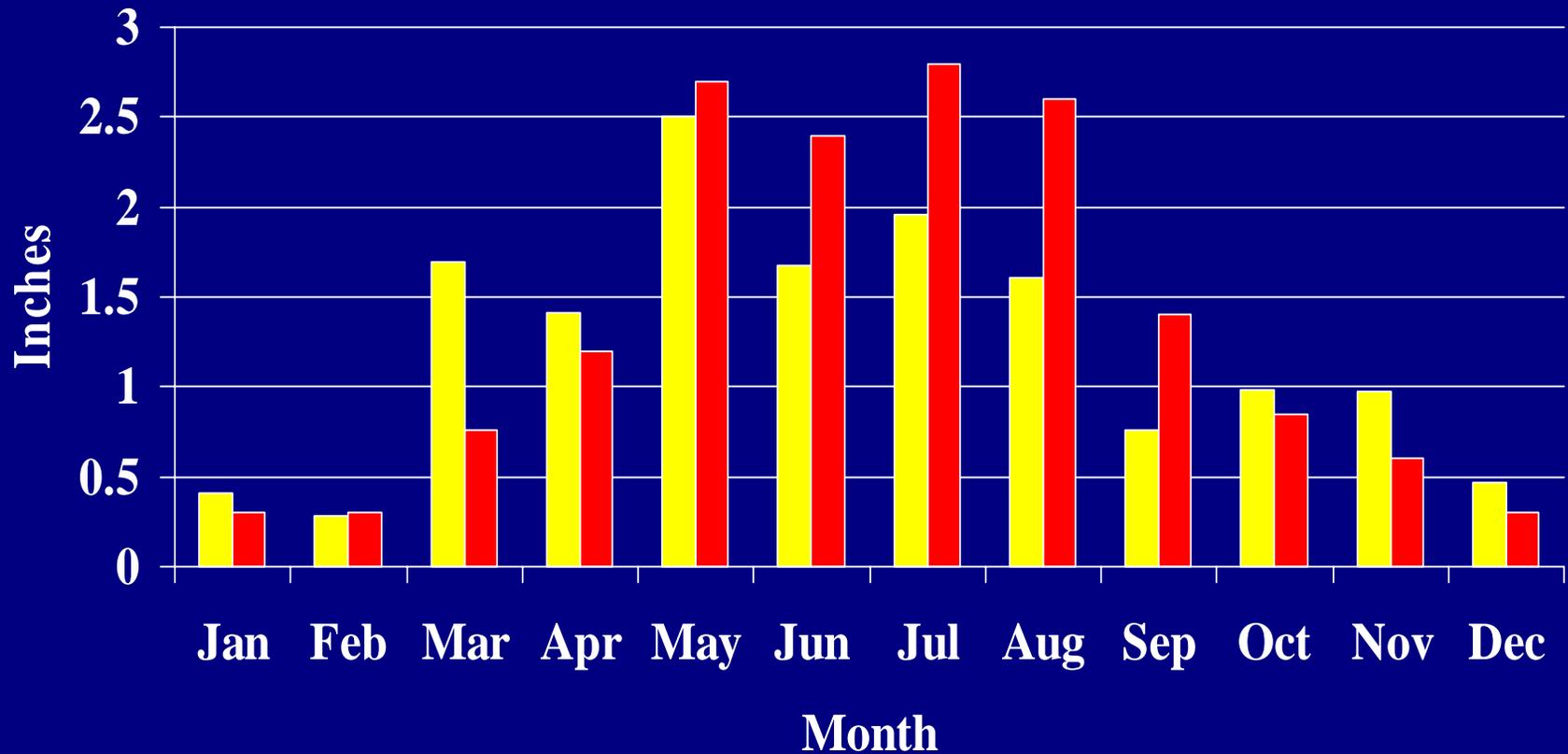
Eastern CO Precipitation Distribution Relative to Crop Water Need



How Do Precipitation Distributions Compare Within Colorado?

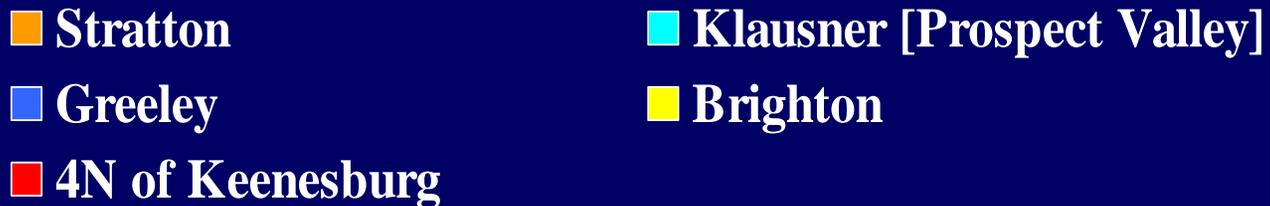
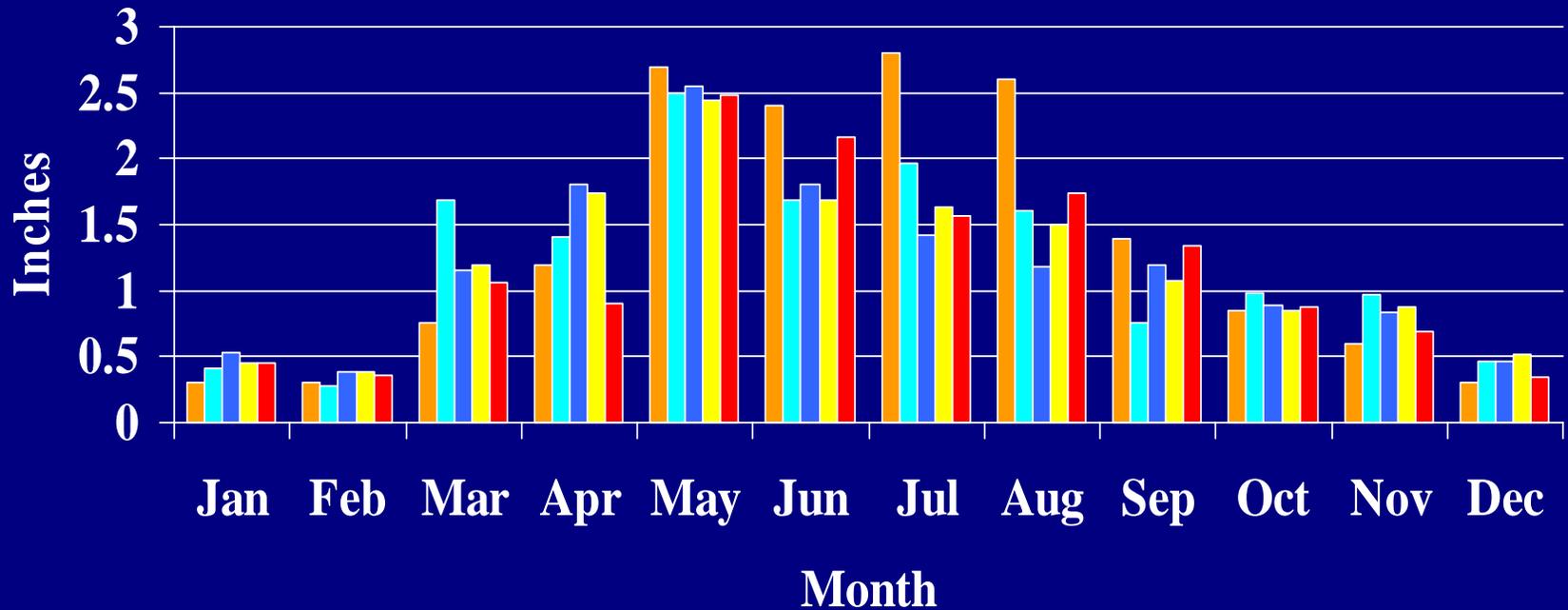


Precipitation Distribution in East Compared to Front Range



■ Klausner [Prospect Valley] ■ Stratton

Precipitation Distributions on Eastern Slope of Colorado



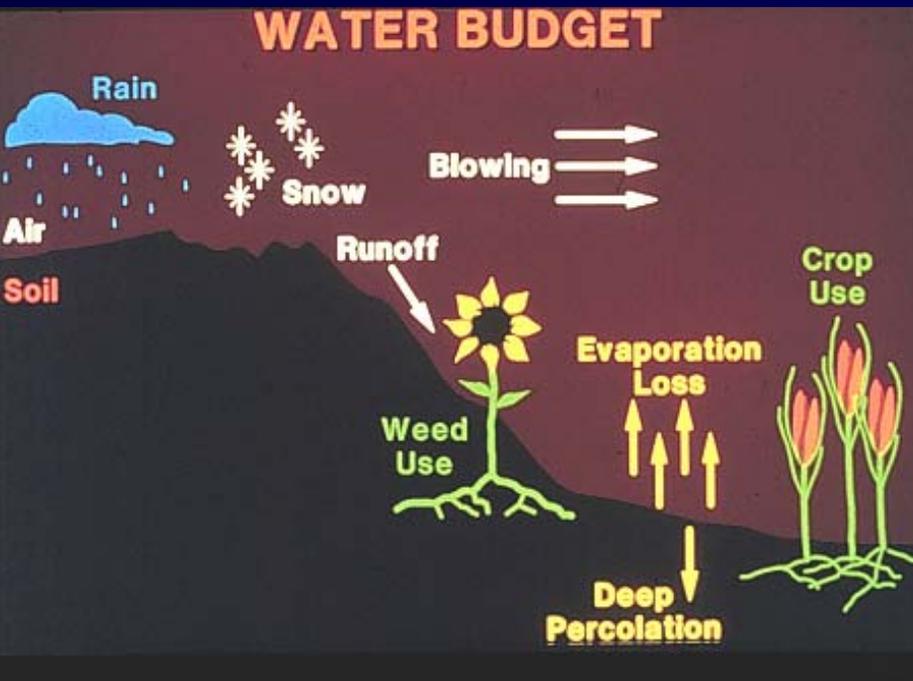
Summer Grain Crops Not a Good Fit for Front Range

- Front Range July and August rainfall less than in eastern CO
- Spring and early summer rainfall greater on Front Range than in Eastern CO
- Wheat and other cool season plants (forages) more likely to be successful than summer crops

What Options Do We Have for the Front Range?



Need Systems that Fit Wetter Spring & Drier Summer



Compare water budget to your climate



Check your climate records

System Options

- Grain Crop Rotations like:
Wheat- Wheat [Clearfield]-Fallow
Wheat-Fallow
- Grain-Forage Crop Rotations like:
Wheat-Hay millet-Fallow
Wheat-Hay millet-Wheat-Fallow
Wheat-Triticale-Fallow
Wheat-Wheat-Austrian winter pea
- Forage Crop Rotations like:
Triticale-Hay millet-Fallow
Oat hay-Hay millet-Fallow
Oat hay-Triticale-Hay millet
Oat hay-Triticale-Austrian winter pea

New Wheat Technology

- “Clearfield” Technology -
Grassy weed control in winter wheat
Weeds controlled: Downy brome
Volunteer rye
Jointed goatgrass
- Wheat varieties “Above” & Bond CL resistant to herbicide called “Beyond”
- Especially useful in systems like:
Wheat-**Wheat**-Fallow
Wheat-**Wheat**-Forage-Fallow

Conclusions

- Dryland cropping on Front Range less productive than eastern CO
- Forage systems most ideal
- Grain crop systems dependent on wheat and other cool season plants possibly Austrian pea etc.
- Plan cropping systems around local precipitation distribution

Questions ??

