



# Sorghum as a Water Saver

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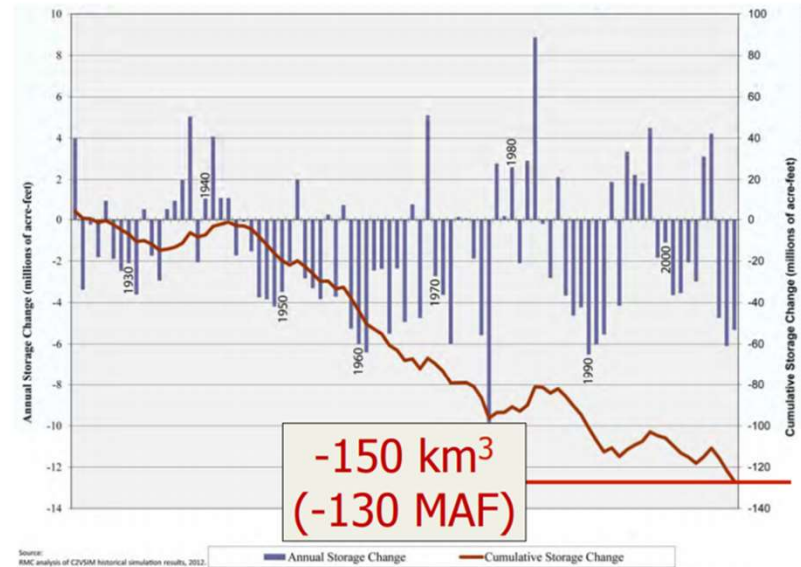


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# Agricultural water outlook in CA



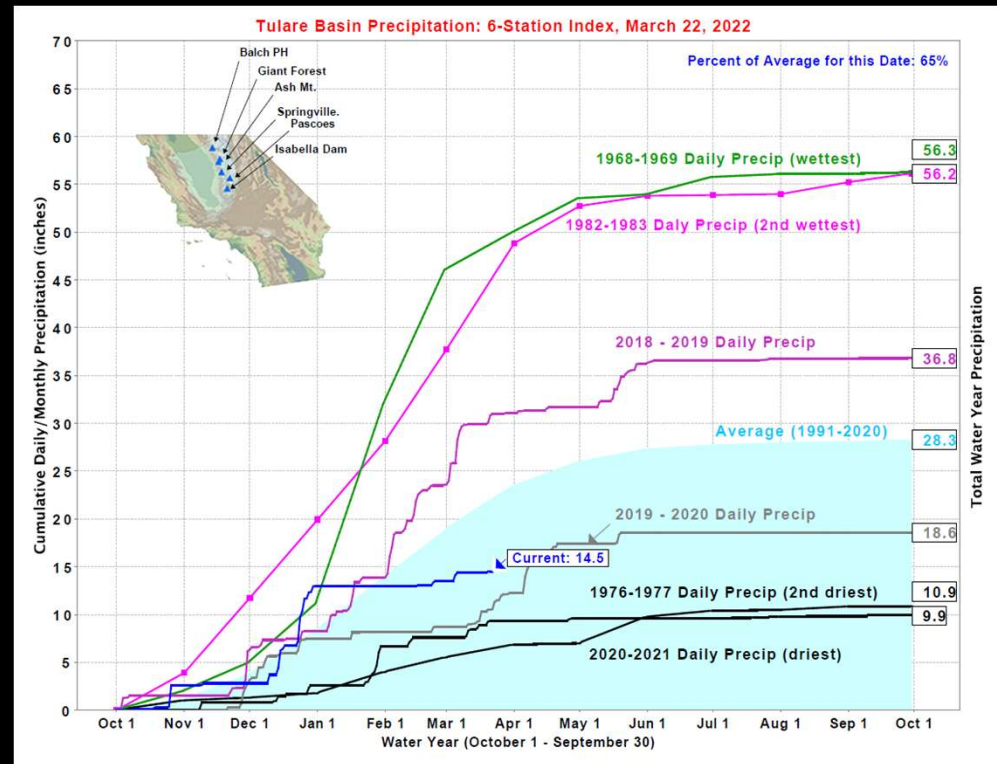
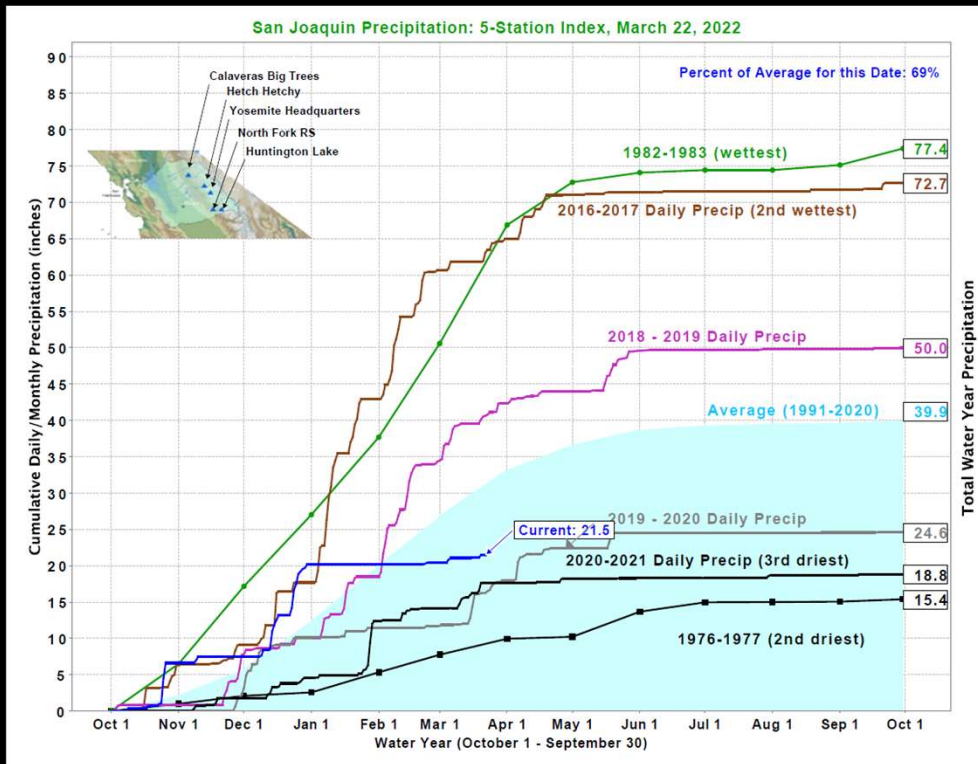
Change in Groundwater Storage in the Central Valley, 1920 - 2010



from: Lester Snow, CA Water Foundation

Presented in Harter, 2015. *CA Agricultural Regions Gear up to Actively Manage Groundwater Use and Protection*, 2015 Western Alfalfa & Forage Symposium, Reno, NV.

# CA's *normal* precipitation cycles



Data from <https://cdec.water.ca.gov/> on 3/22/22

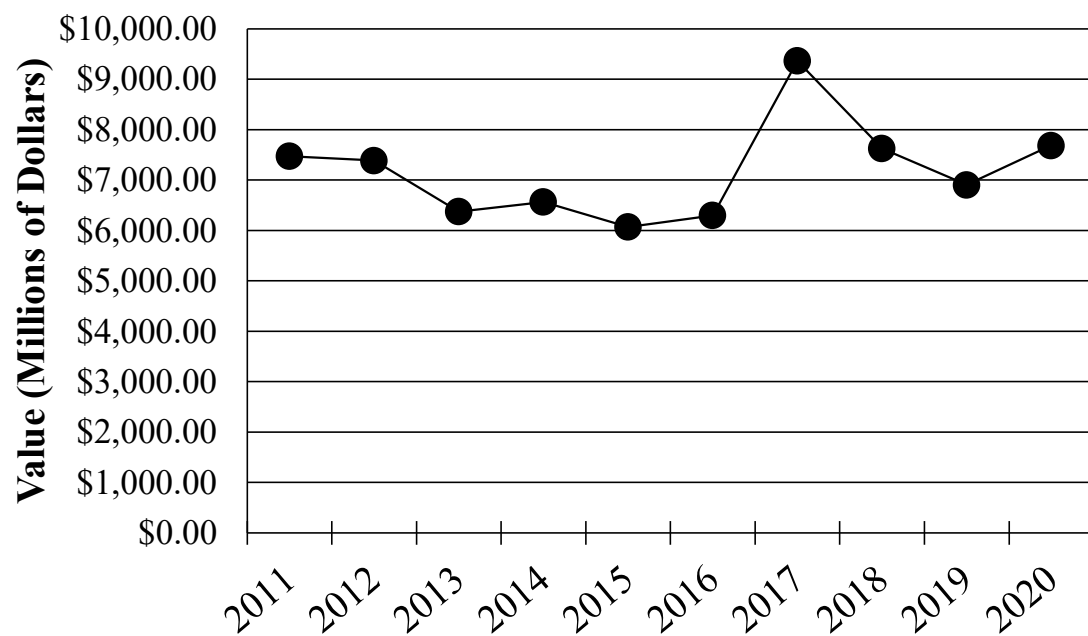
# Hungry mouths to feed

Photo by Joe Proudman / CLEAR Center



1.7 million milk-cows plus replacements

## California Milk Production Value



# What about sorghum as a feed?



**Nutrient composition of sorghum silage (n=15) (Heguy et al.)**

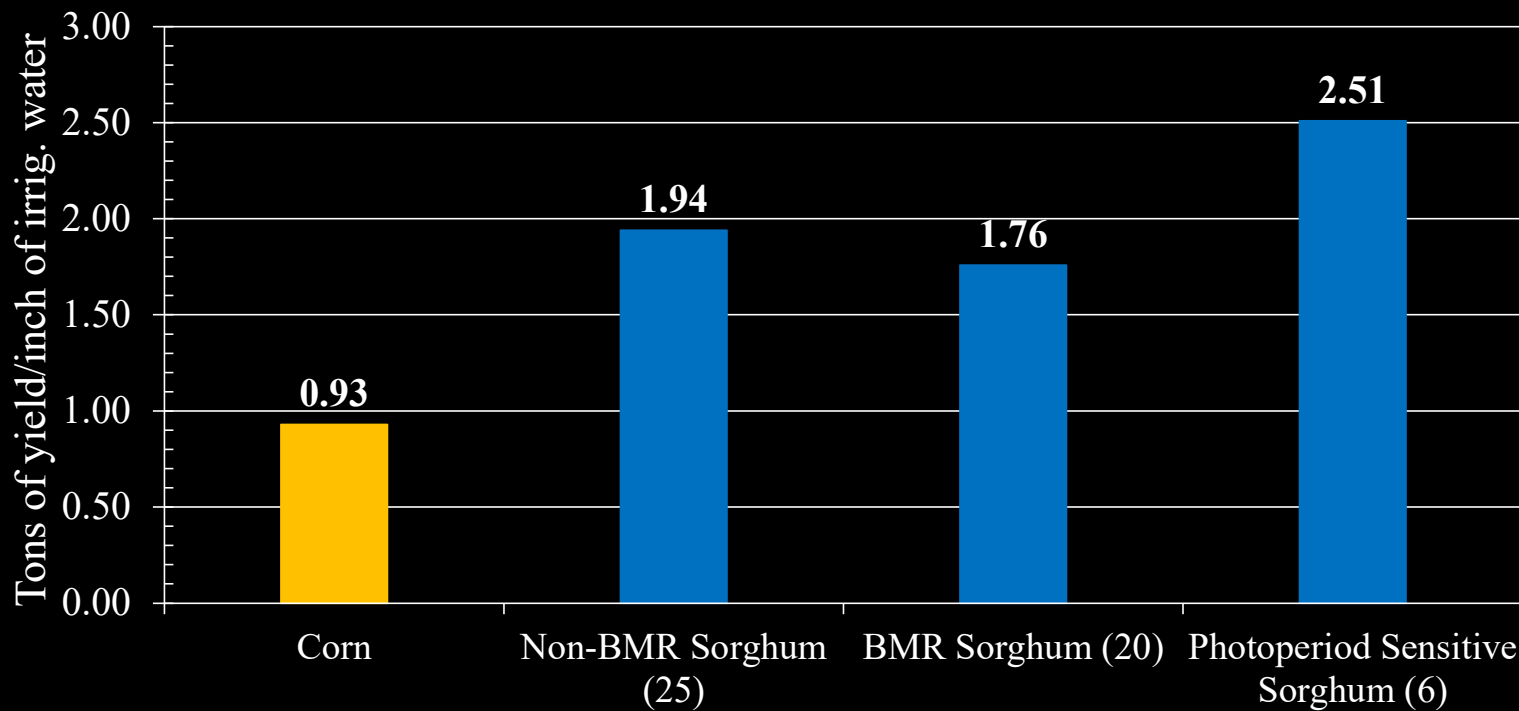
	% of DM							
	DM	CP	ADF	NDF	Starch	NFC	Ash	NDFD 30, %NDF
<b>Mean</b>	<b>29.3</b>	<b>8.5</b>	<b>33.9</b>	<b>49.1</b>	<b>13.1</b>	<b>28.9</b>	<b>11.7</b>	<b>48.9</b>
<b>Corn silage from the Western US*</b>								
<b>Mean</b>	<b>37.4</b>	<b>7.8</b>	<b>24.7</b>	<b>40.5</b>	<b>31.2</b>	<b>45.1</b>	<b>5.4</b>	<b>57.4</b>

\*2018 values from Rock River Laboratory (n=5,681)

For varietal performance, visit the [UC Sorghum webpage with variety testing results](#).

# Sorghum as a water saver

## Crop Water Use Efficiency



Irrigation (inches)

- Sorghum = 13.2
- Corn = 28

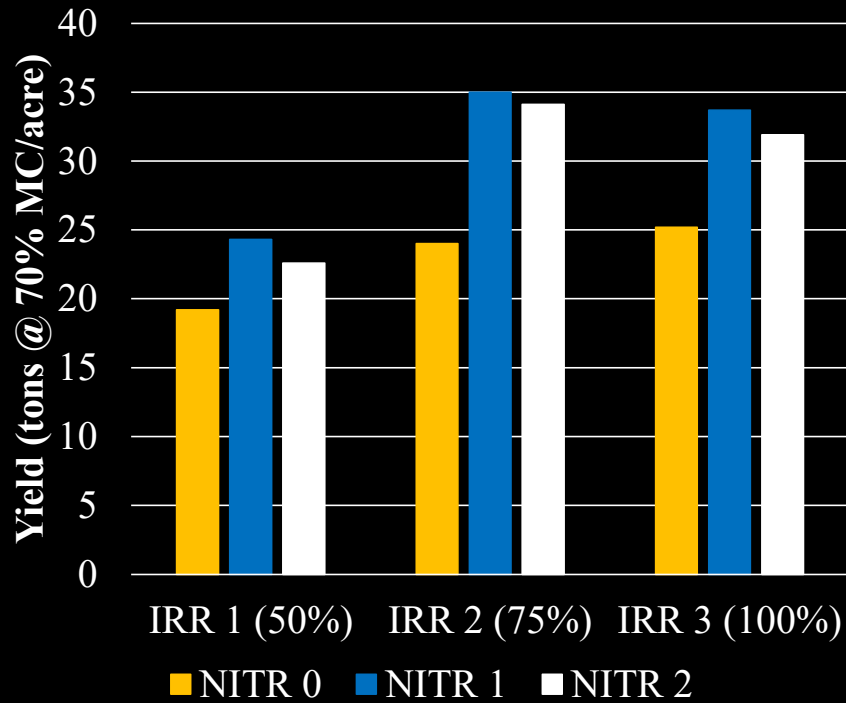
[Dahlberg et al. \(2017\)](#)



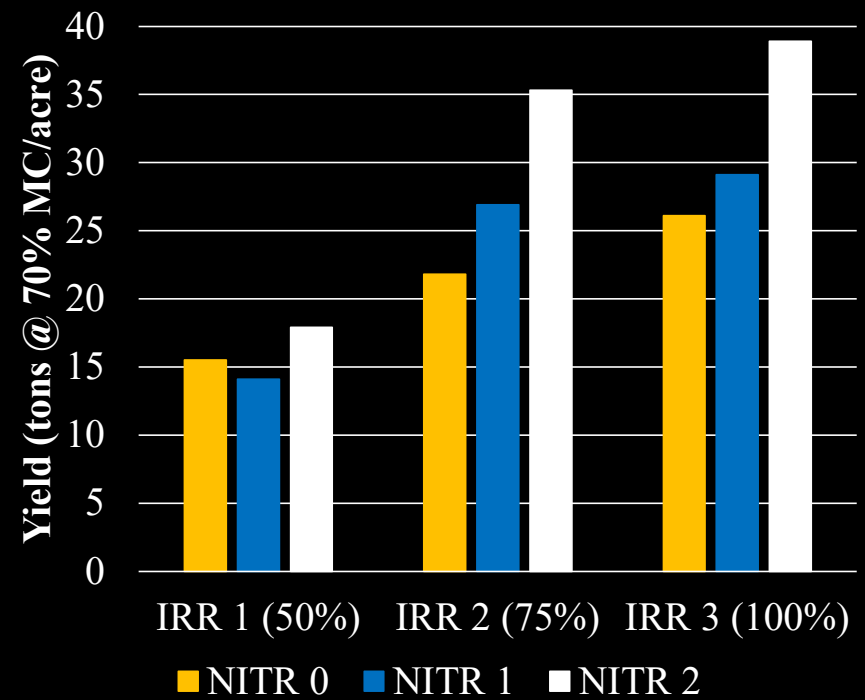
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# Response to increasing water and nitrogen

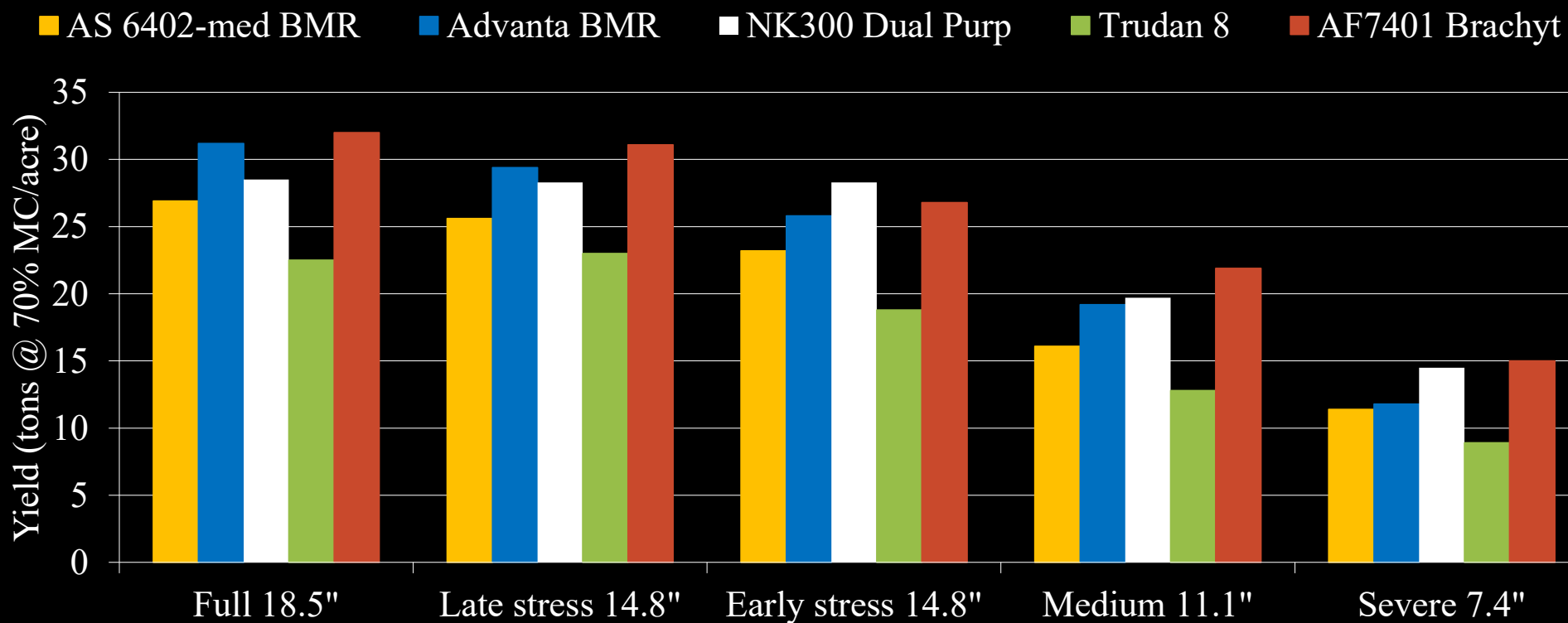
## Sorghum (medium season dual purpose)



## Corn (long season)



# Deficit irrigation affects varieties differently



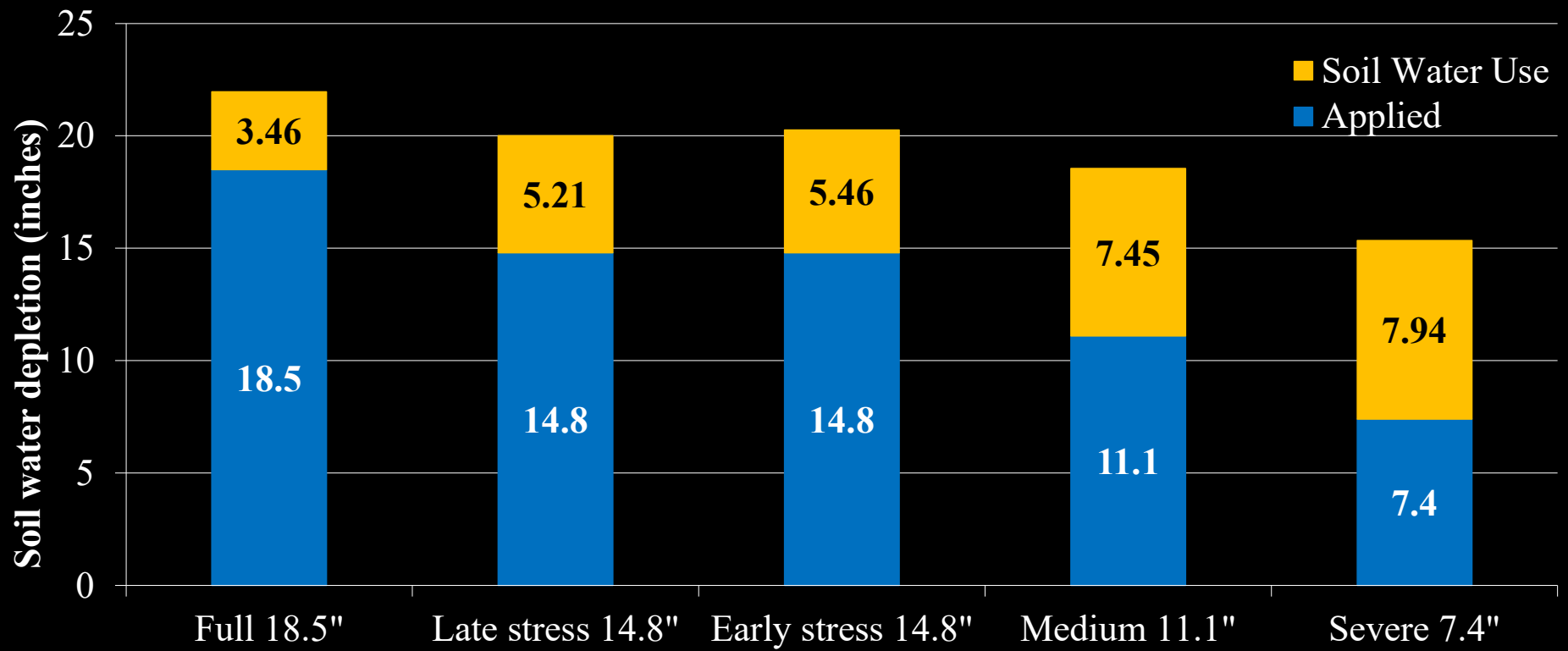
Bob Hutmacher, 2021 Golden State Dairy Management Webinars, "Sorghum Irrigation Management Field Evaluations – Deficit to full irrigation."



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# Crop water use under deficit irrigation



Bob Hutmacher, 2021 Golden State Dairy Management Webinars, "Sorghum Irrigation Management Field Evaluations – Deficit to full irrigation."



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# Take this home:

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- Irrigation water scarcity is a threat to forage production
- Abundant forage sorghum can be produced with less water than corn
- Select varieties that meet tonnage and cow nutrition goals
- Avoid early-season (pre-flowering) stress
- You get out what you put in: you *CAN* under-irrigate sorghum



# Thanks!

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