



Deficit Irrigation Strategies

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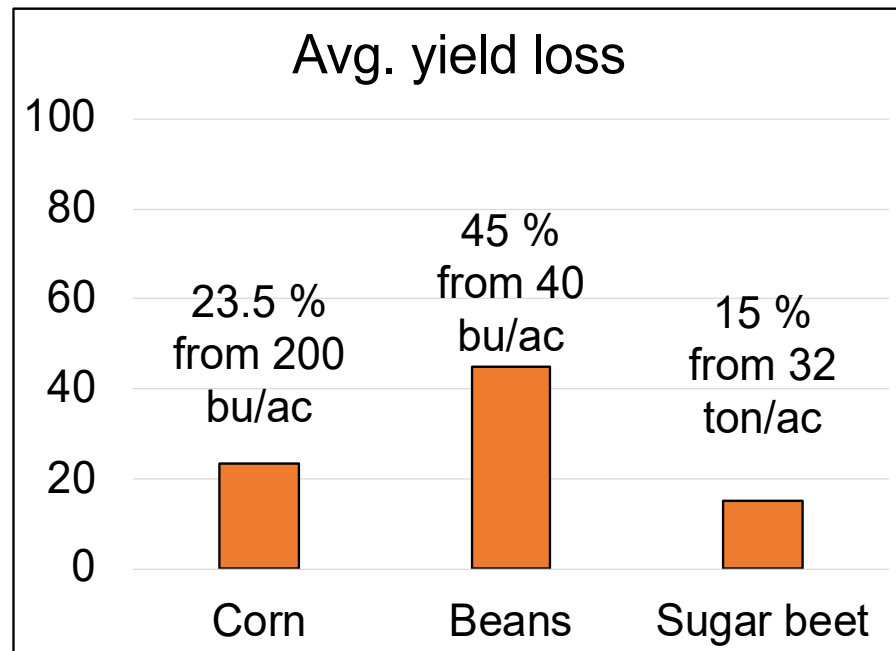
2021 Crop Protection Clinic



Yield analysis for fields under GFL

- ❑ Collected yield and agronomy data from **42** fields
 - Corn, beans, sugar beet
 - Furrow and pivot irrigated
 - Received 0.5 – 0.8 inches of rain during cutoff

- ❑ Yield
 - Corn: **153 ± 23** bu/ac
 - Beans: **22 ± 6** bu/ac
 - Beet: **27 ± 2** ton/ac, sucrose content **16.5%**



Yield analysis - Corn

- Longer growing days and delayed harvesting had better yield.
- Heavier irrigation before cutoff decreased yield.
- High Nitrogen also decreased yield.
- Heavier soil had better yield.
- Strip-till had better yield than minimum till or plow.

Yield analysis - Beans

- Longer growing days and delayed harvesting had better yield.
- More nitrogen resulted better yield.
- Heavier irrigation before cutoff decreased yield.
- Minimum and strip till outperformed plow.
- Furrow-irrigated fields had better yield than pivot-irrigated fields.

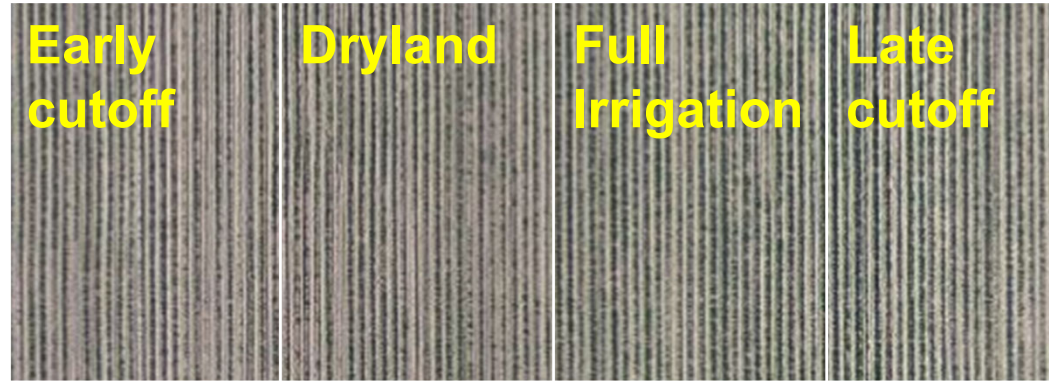
Irrigation Strategies - Beans

Treatment	Irrigation (in)	Note
0% (dryland)	0	Planted 5/27
33%	3.3	Vergo
66%	6.7	50 lbs N
100% (full irrigation)	10.0	Rain since planting: 2.5 in
133%	13.4	
Cutoff – early	8.4	No irrigation before 6/29
Cutoff - middle	4.7	No irr. between 6/29 and 8/1
Cutoff - late	7.1	No irr. after 8/1



Treatment effect - Beans

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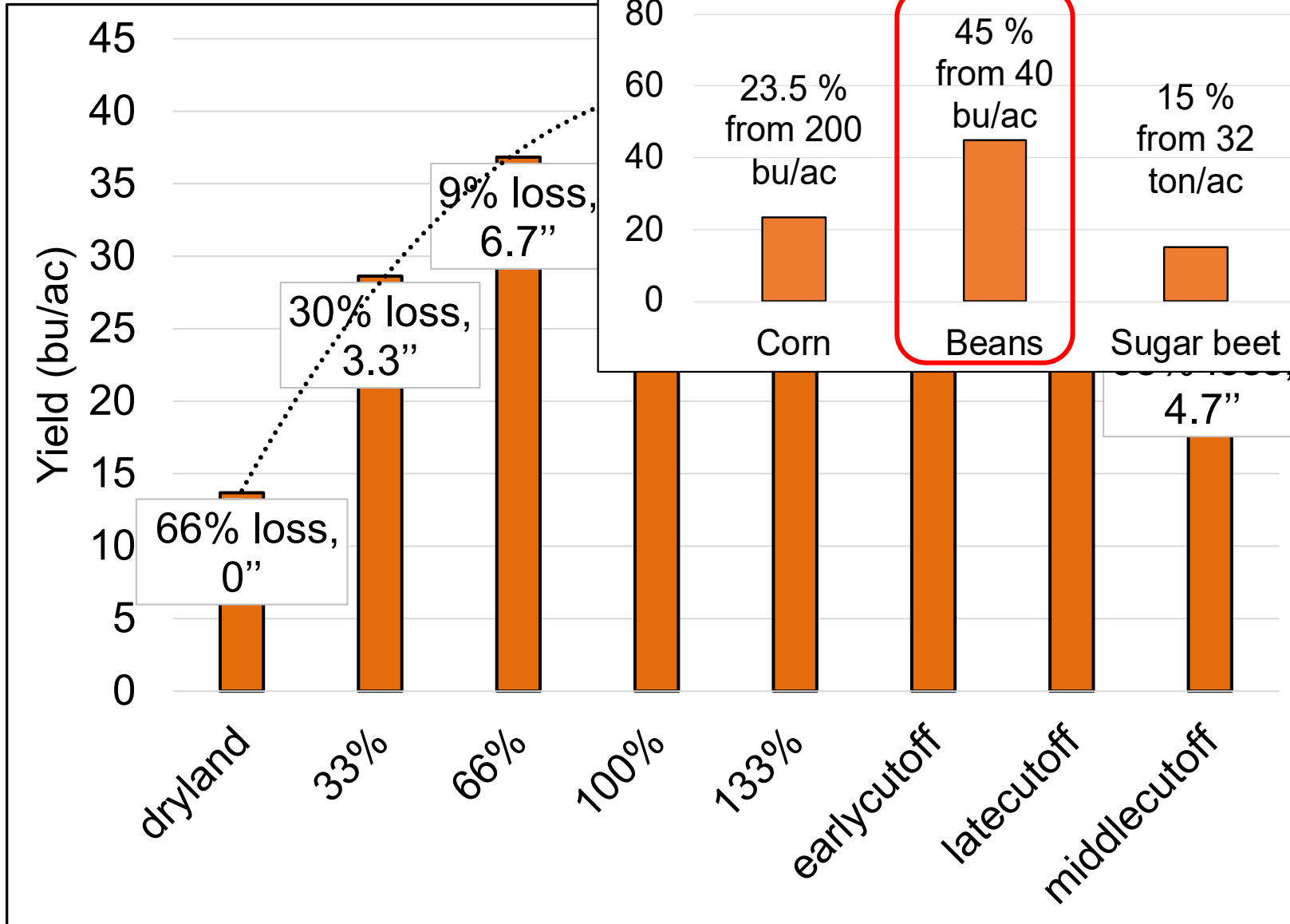
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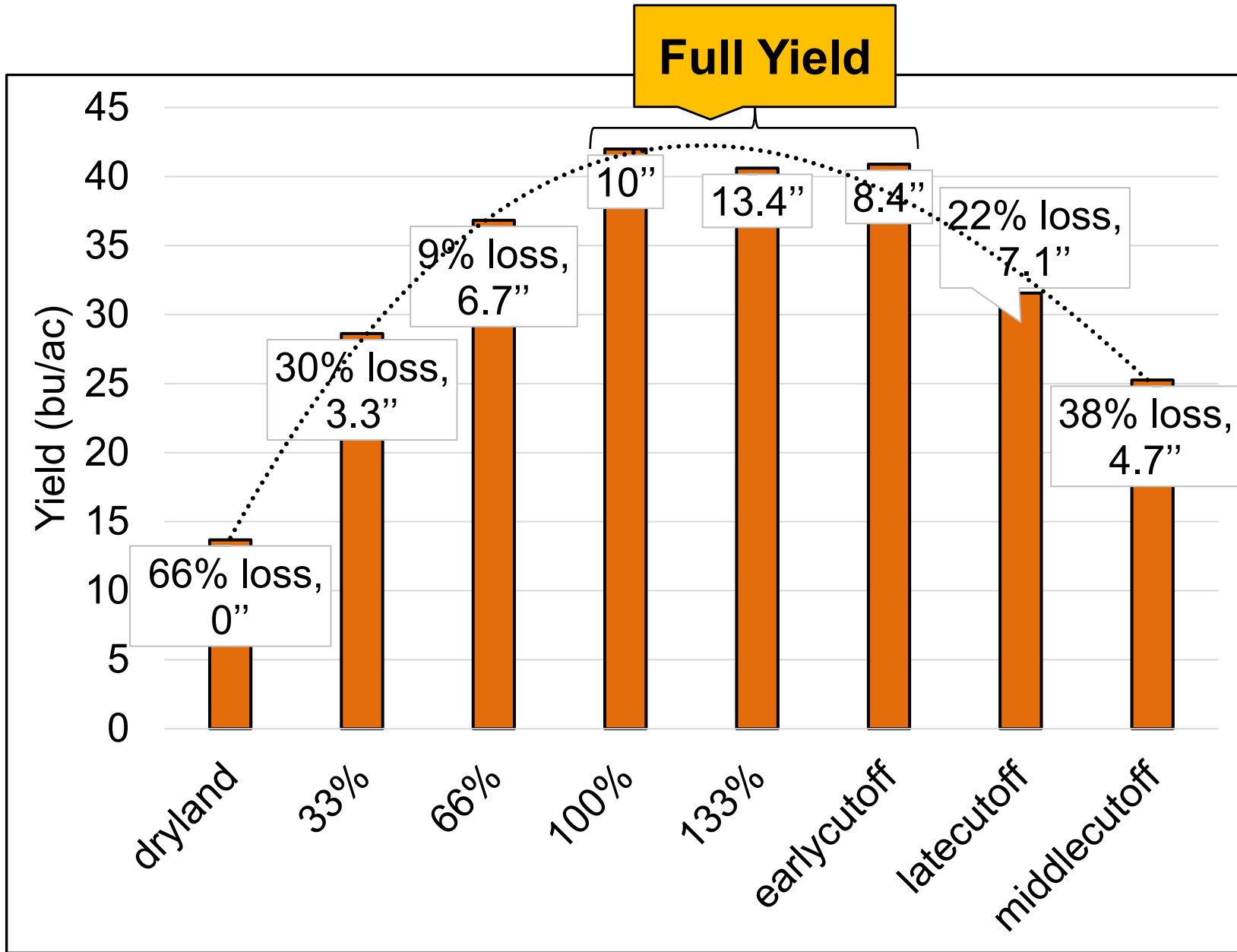


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Yield - Beans





Irrigation Strategies - Corn

Treatment	Irrigation (in)	Note
0% (dryland)	0.7	Planted 5/11
33%	5.0	DKC 4310
66%	9.3	150 lbs N
100% (full irrigation)	13.8	Rain since planting: 2.7 in
133%	18.1	
Cutoff -1 wk from tassel	12.1	
Cutoff -2 wk from tassel	10.4	
Cutoff -3 wk from tassel	8.7	



Treatment effect - Corn

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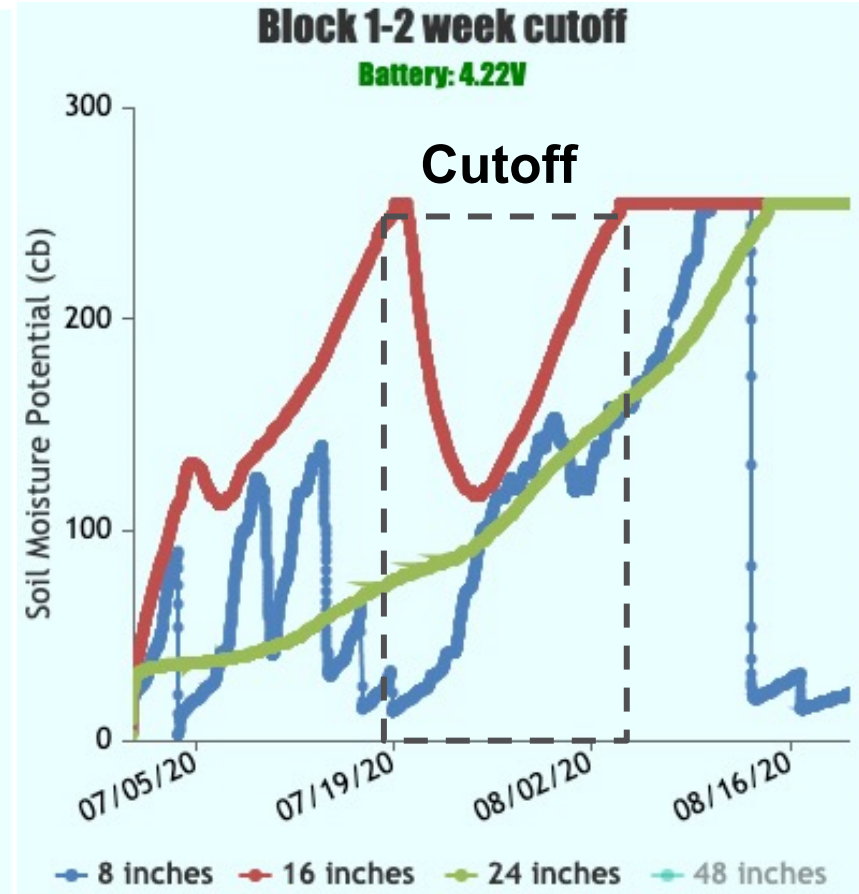
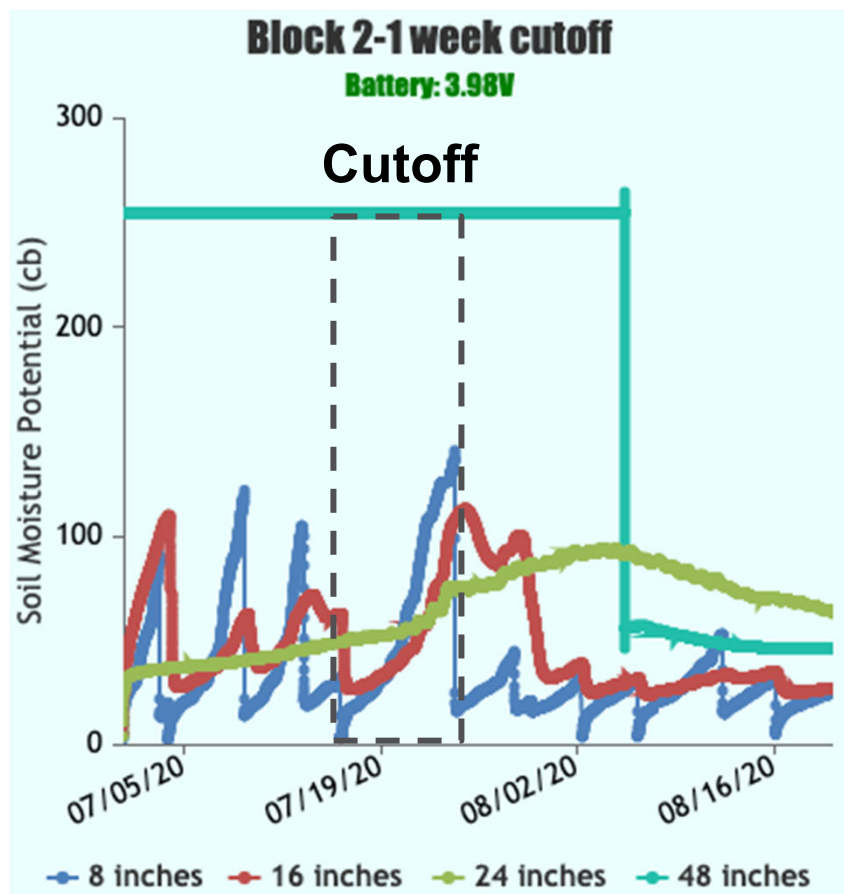
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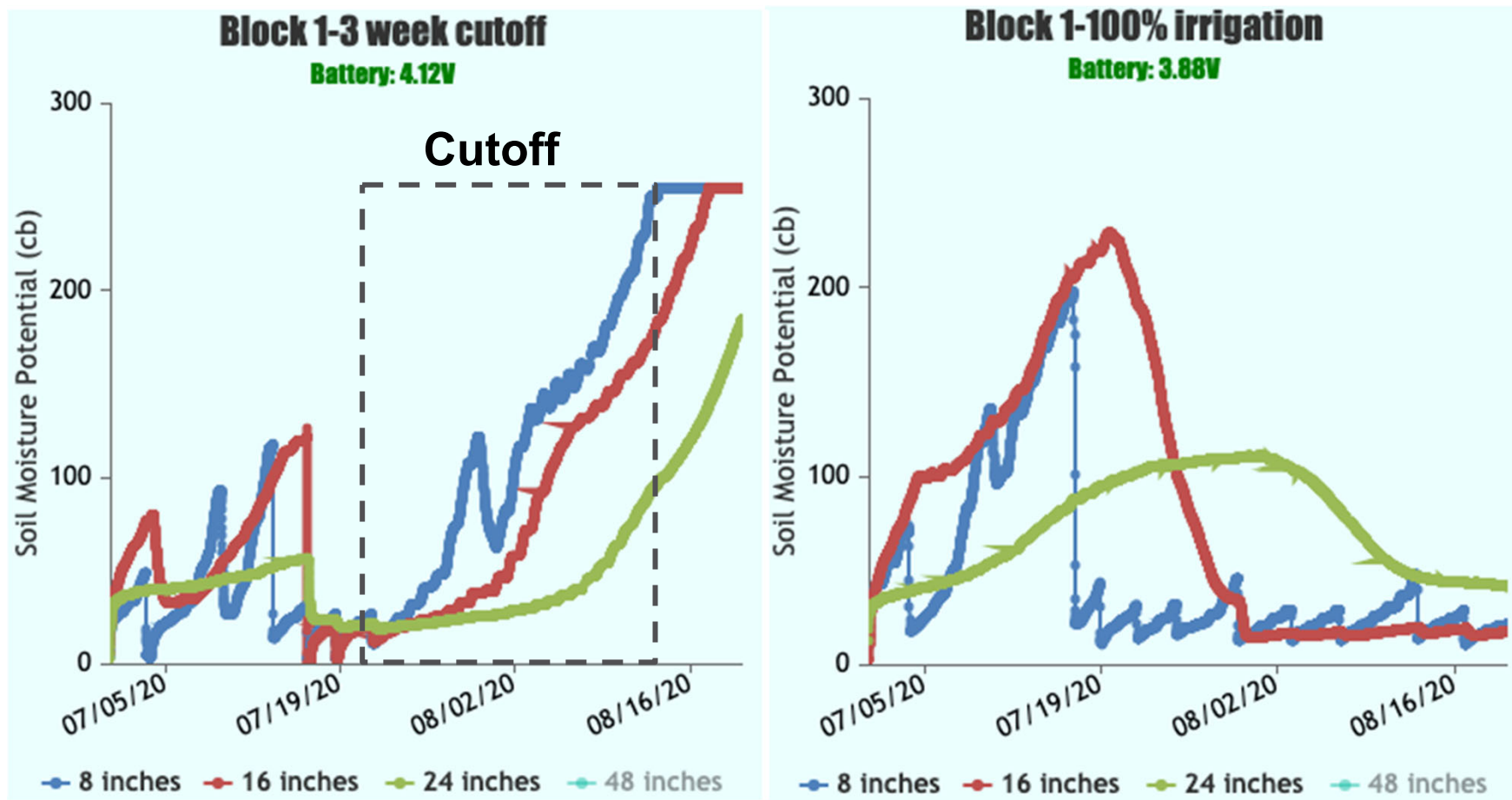
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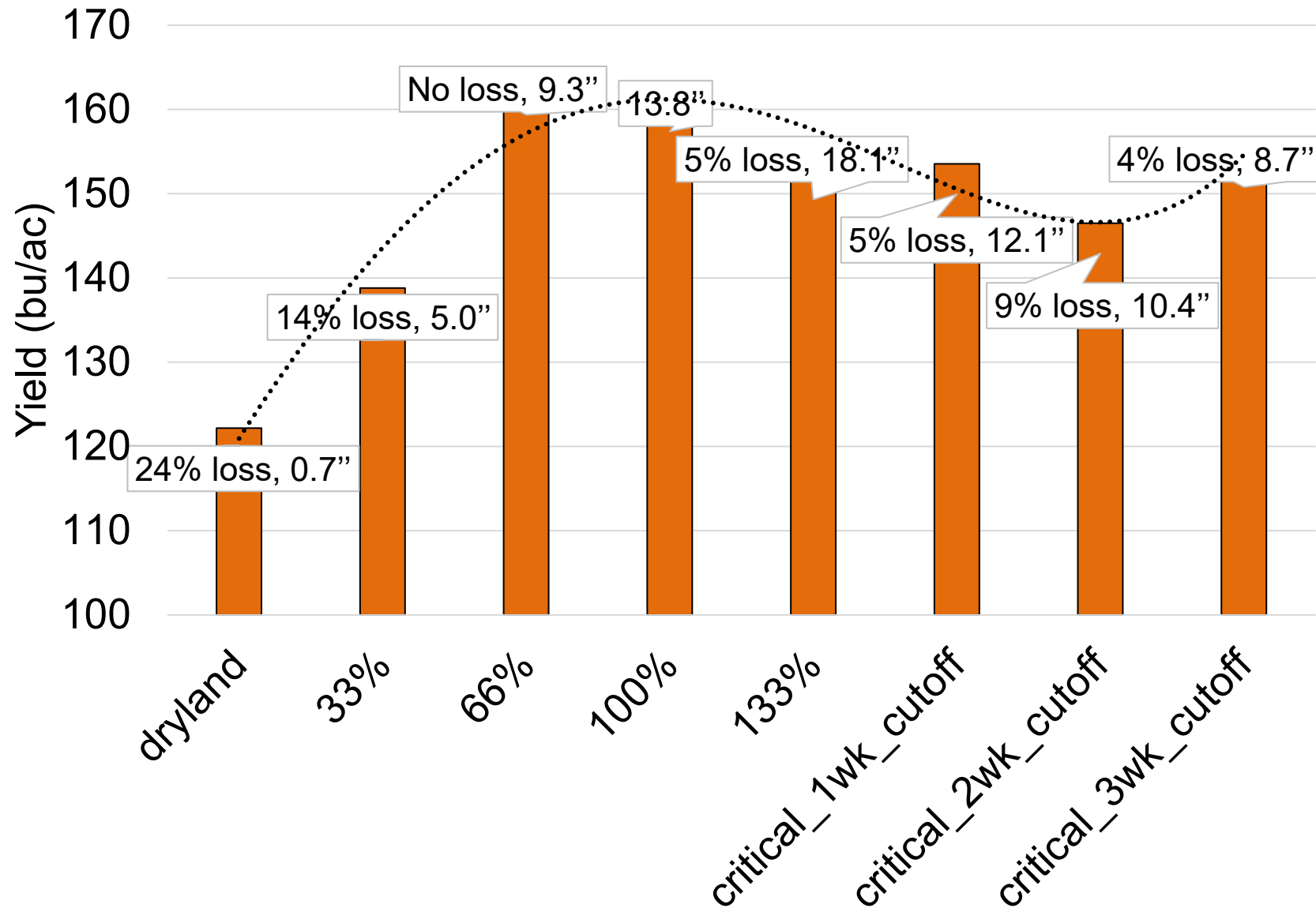
Soil water content - Corn



Soil water content - Corn



Yield - Corn



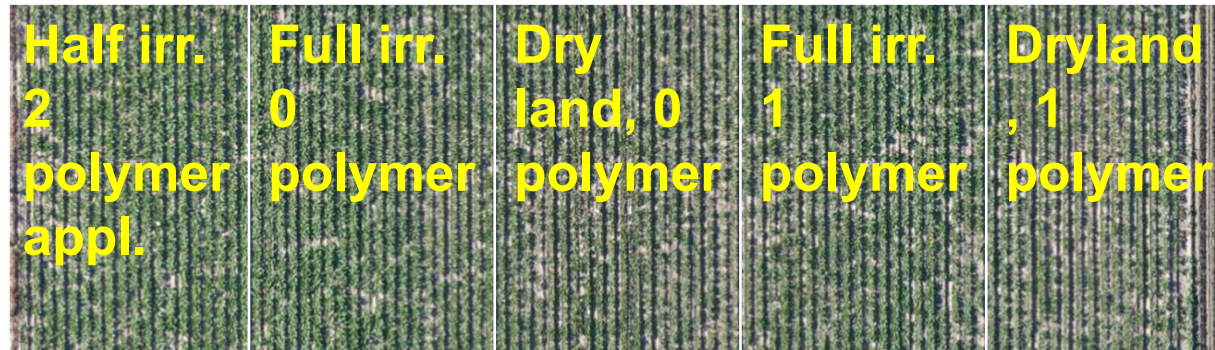
Irrigation Strategies – Sugar Beet

Treatment	Irrigation (in)	Note
Dryland (0%)	0.6	Planted 5/1
Full irrigation (100%)	13.9	W611NT G50
Half irrigation	7.5	200 lbs N
Cutoff – early	11.1	Rain since planting: 4.5 in
Cutoff – middle	4.3	
Cutoff – late	13.1	

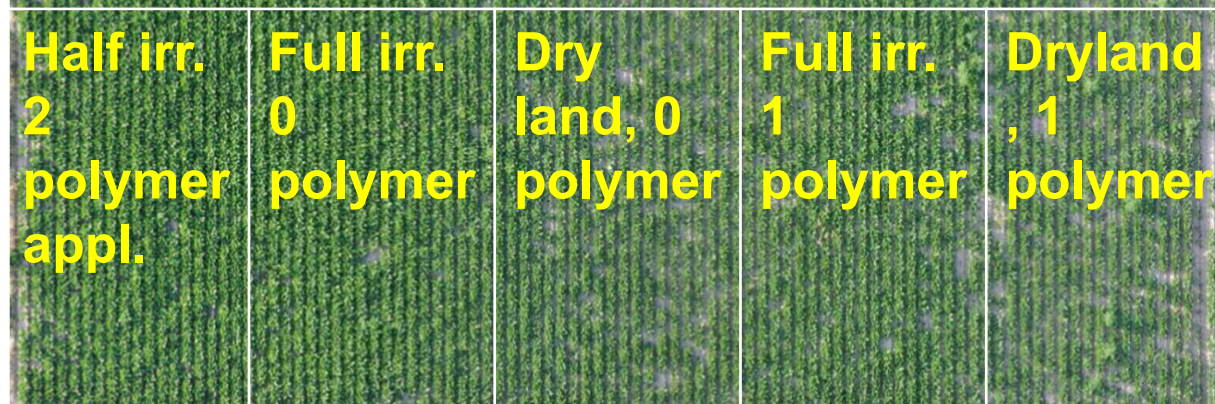


Treatment effect – Sugar beet

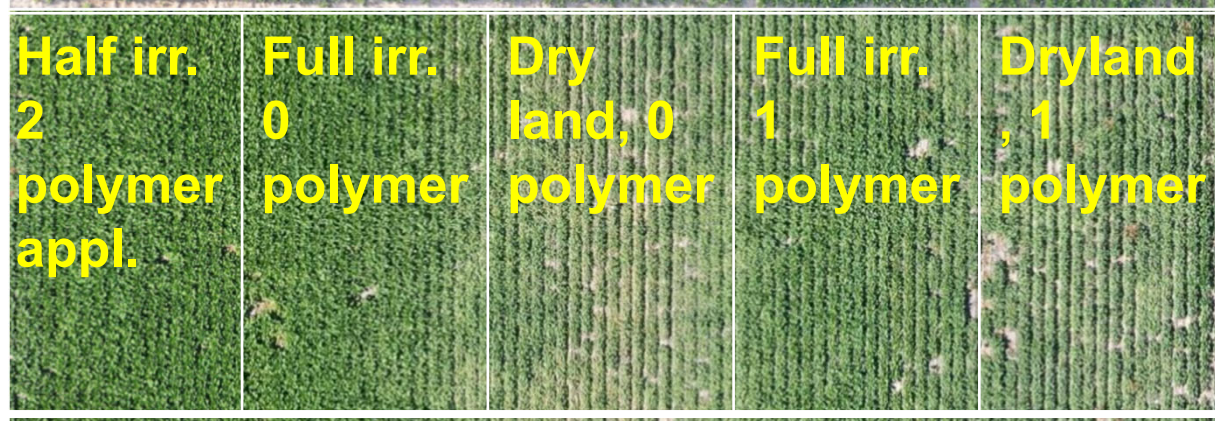
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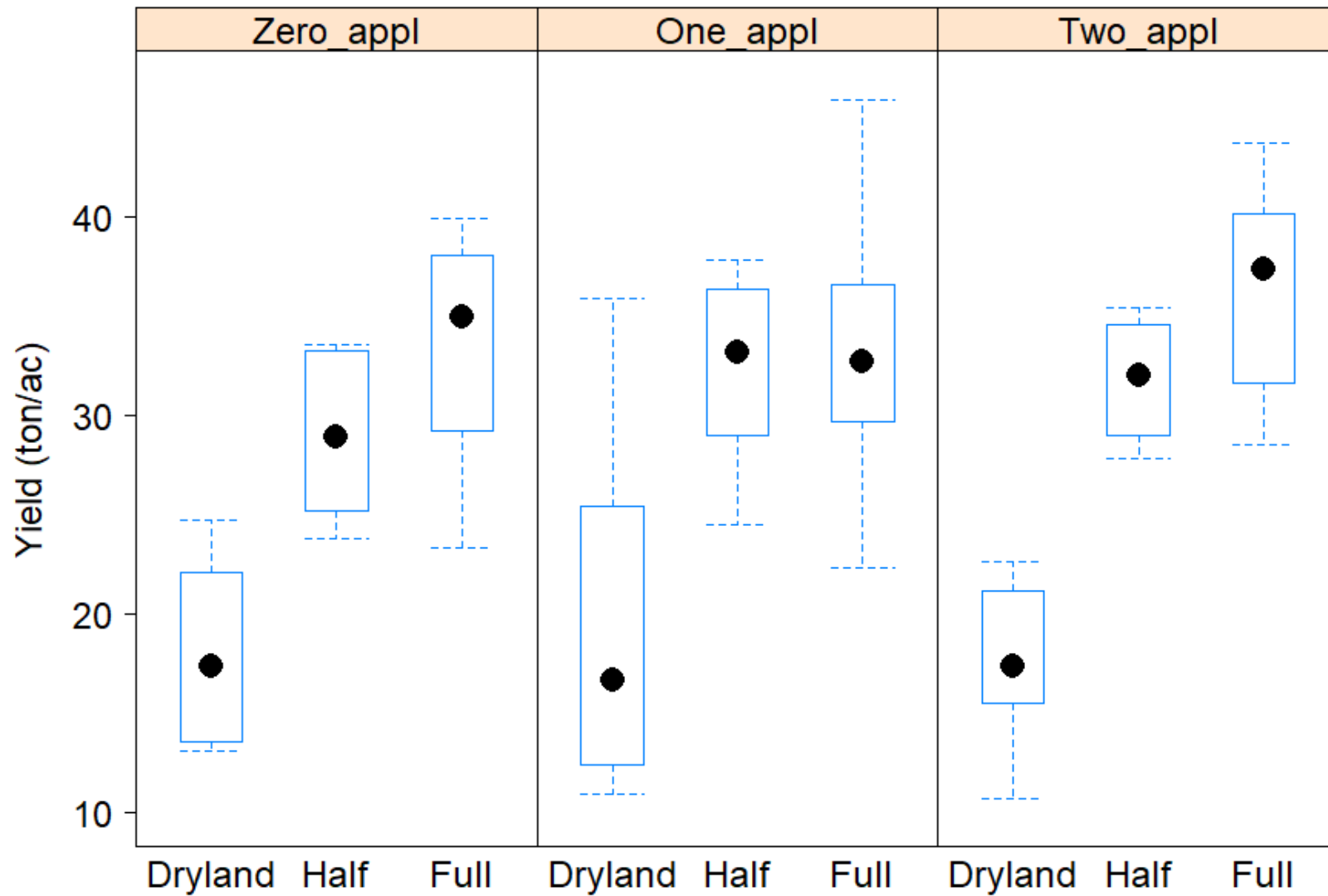
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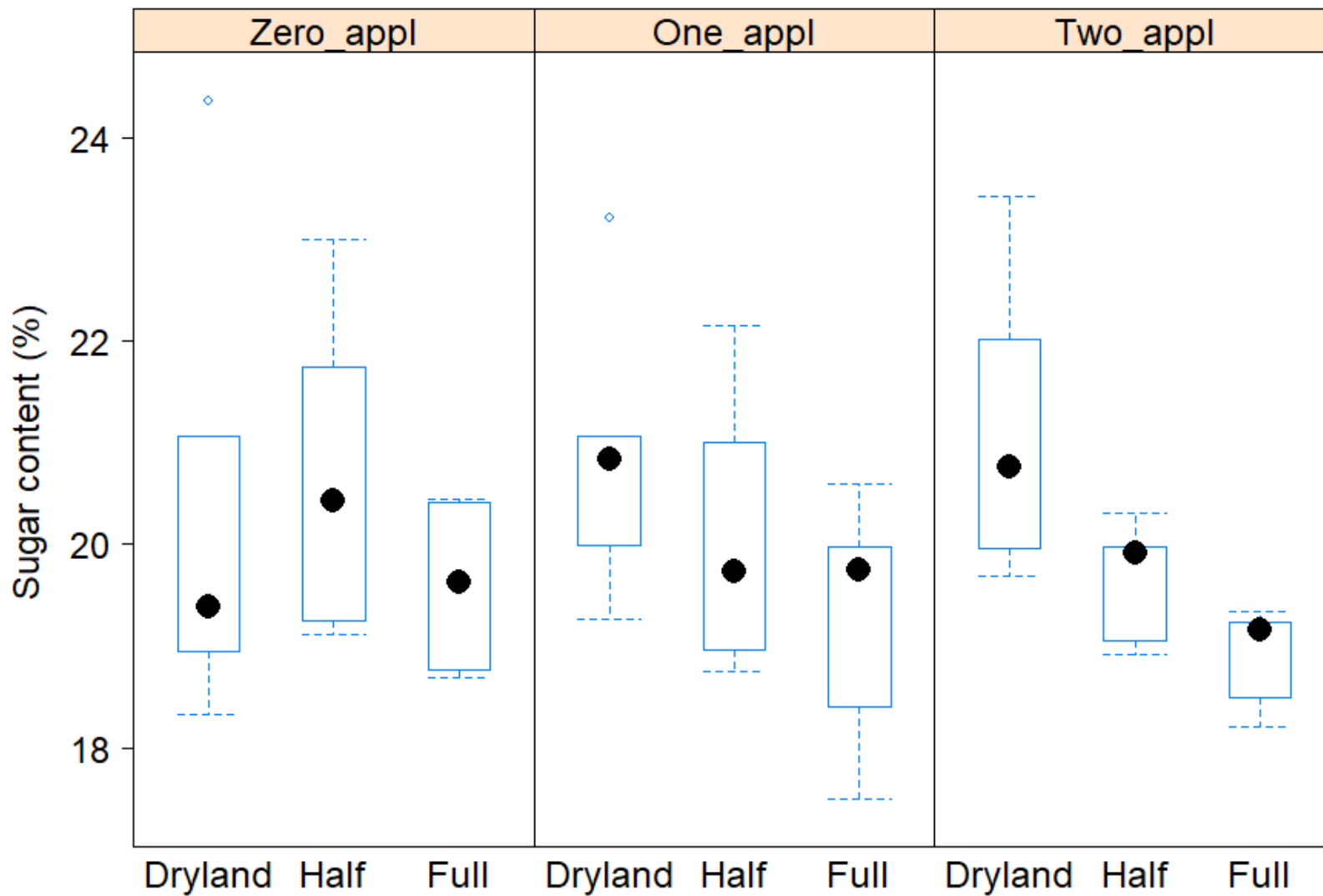
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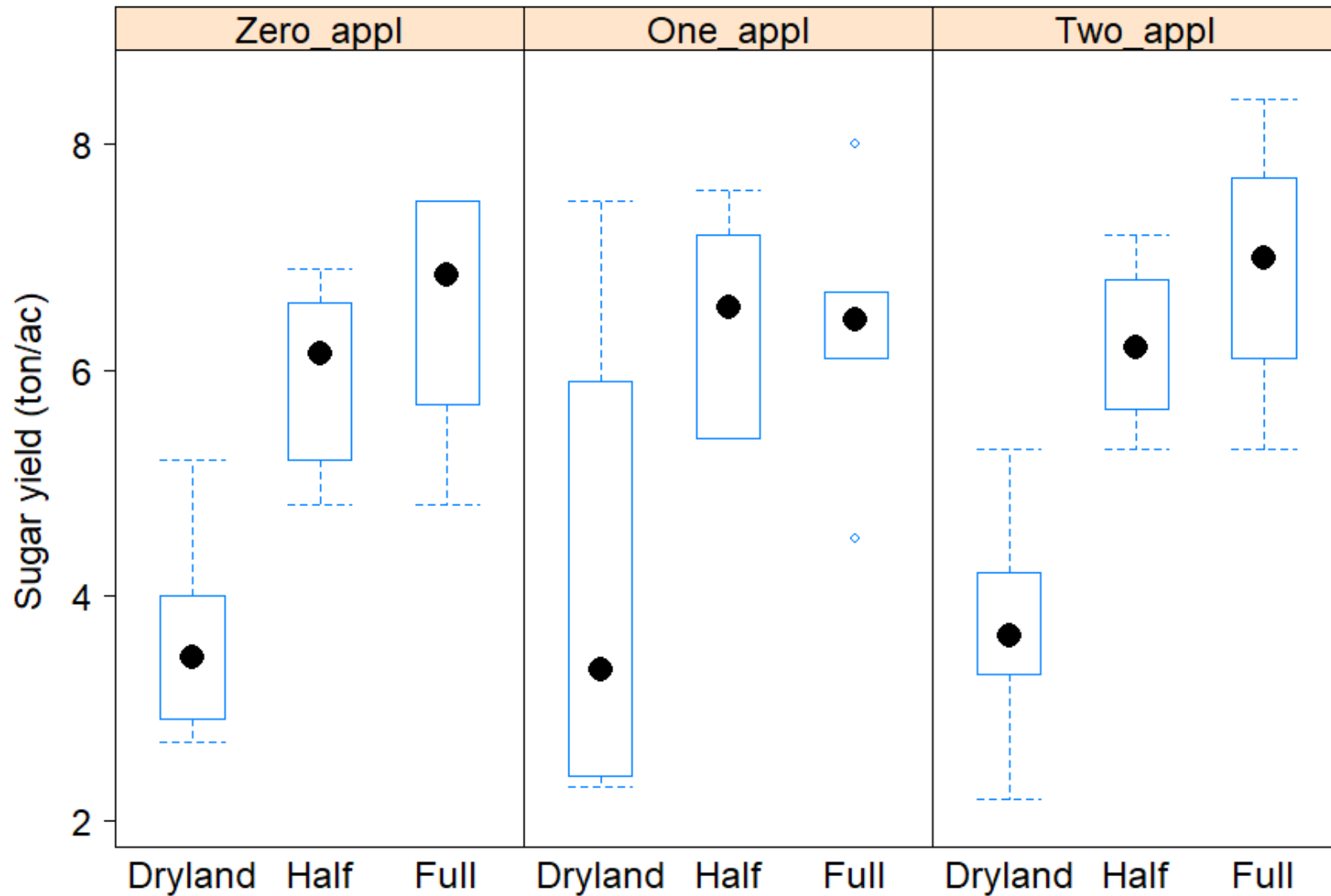
Tonnage Yield – Sugar Beet



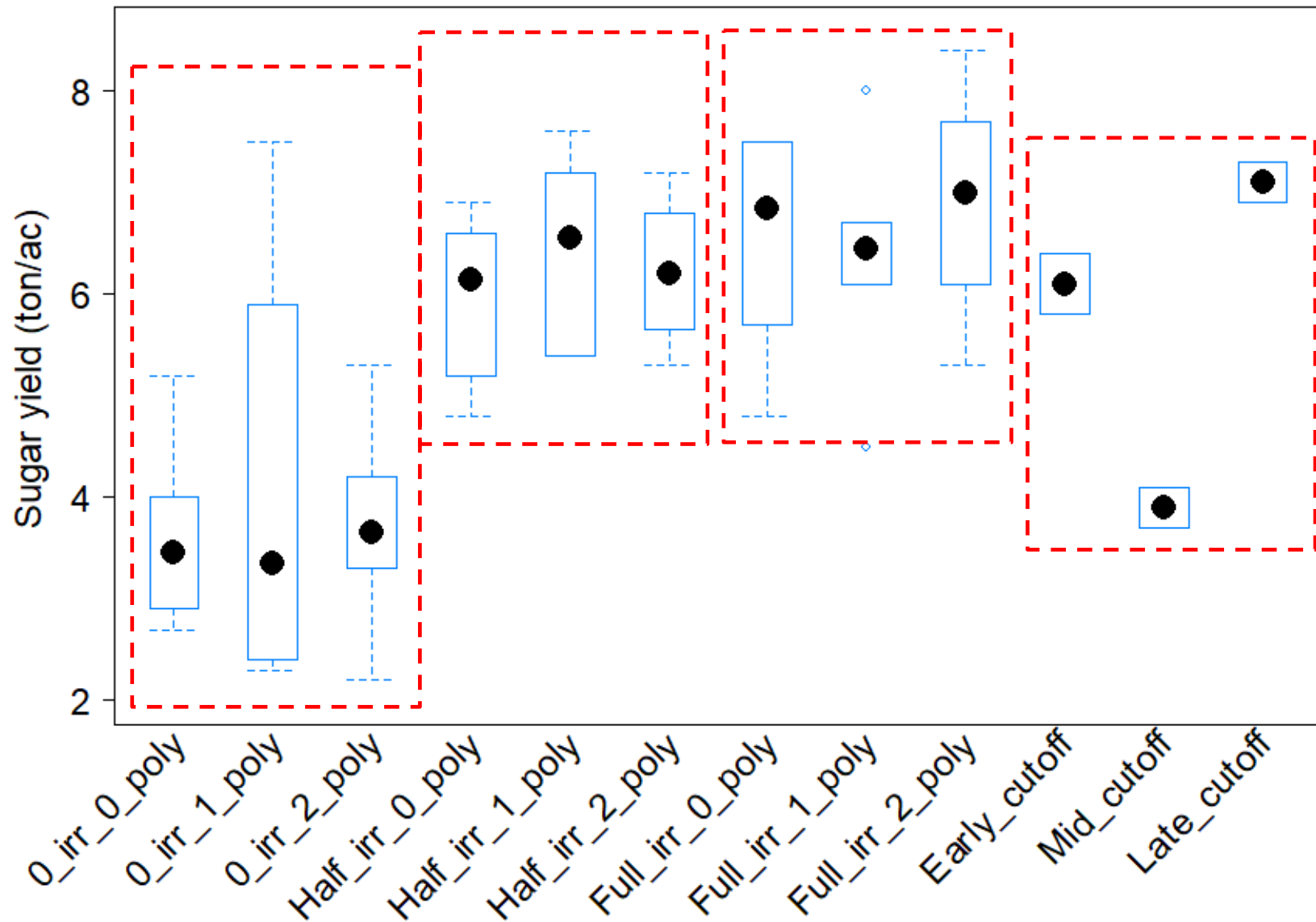
Sucrose Content – Sugar Beet



Sugar Yield



Sugar Yield – all treatments





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Thank you for your support!

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