Tolerance of High Oil Corn Pollinators and Grain Parents to Certain Herbicide Families

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High Oil Corn

- High oil corn has 2-4% more oil than conventional corn.
- Oil has 2.25 times more energy per pound than starch.
- High oil corn has slightly more, better quality protein, but less starch.

TopCross® Blends

- Two genetically different seeds blended in bag:
  - 90-92% sterile hybrid (low/normal oil)
  - 8 - 10% high oil pollinator
- Pollinator plants provide high oil pollen for the entire field
- High oil pollen produces high oil grain on sterile hybrids (xenia effect)

Objective

To determine if the grain parent and pollinator components of TC Blends® are tolerant to major herbicide families.

1998 and 1999 High Oil TC Blend® Agronomy Research Locations

- York, NE
- Ankeny, IA
- Mankato, MN
- Tipton, IN

Methods

- **Randomized Complete Block with a split-plot arrangement.**
  - **Main plot = herbicide treatment.**
  - **Subplot = pollinator & grain parent combo.**
  - **Four replications per location.**
- **Plot size - four row plots x 17.5 feet long.**
  - **Two rows = pollinator.**
  - **Two rows = grain parent (male sterile).**
- **All herbicides applied with 20 GPA water carrier.**

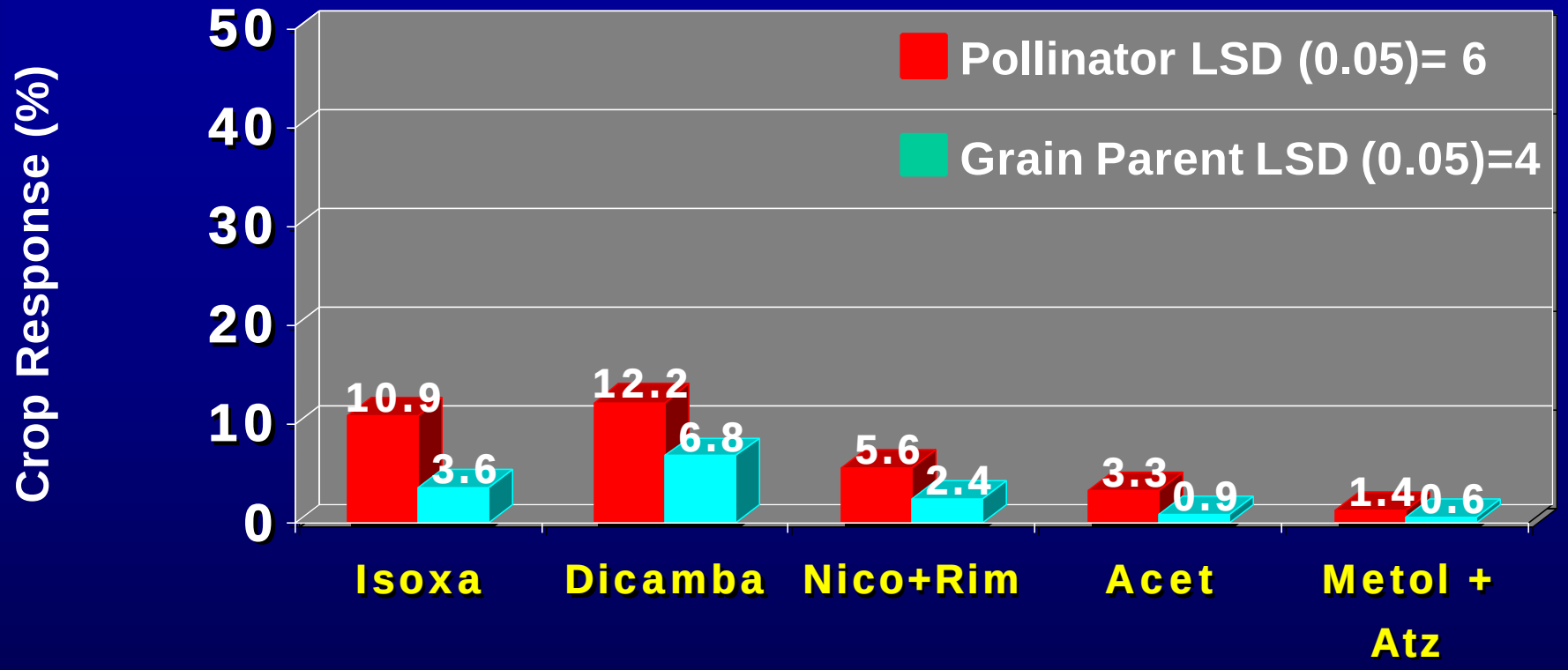
Methods

- Crop response (14 DAT).
- No grain yield taken.
- Eight pollinators and seven male-sterile grain parents were evaluated.

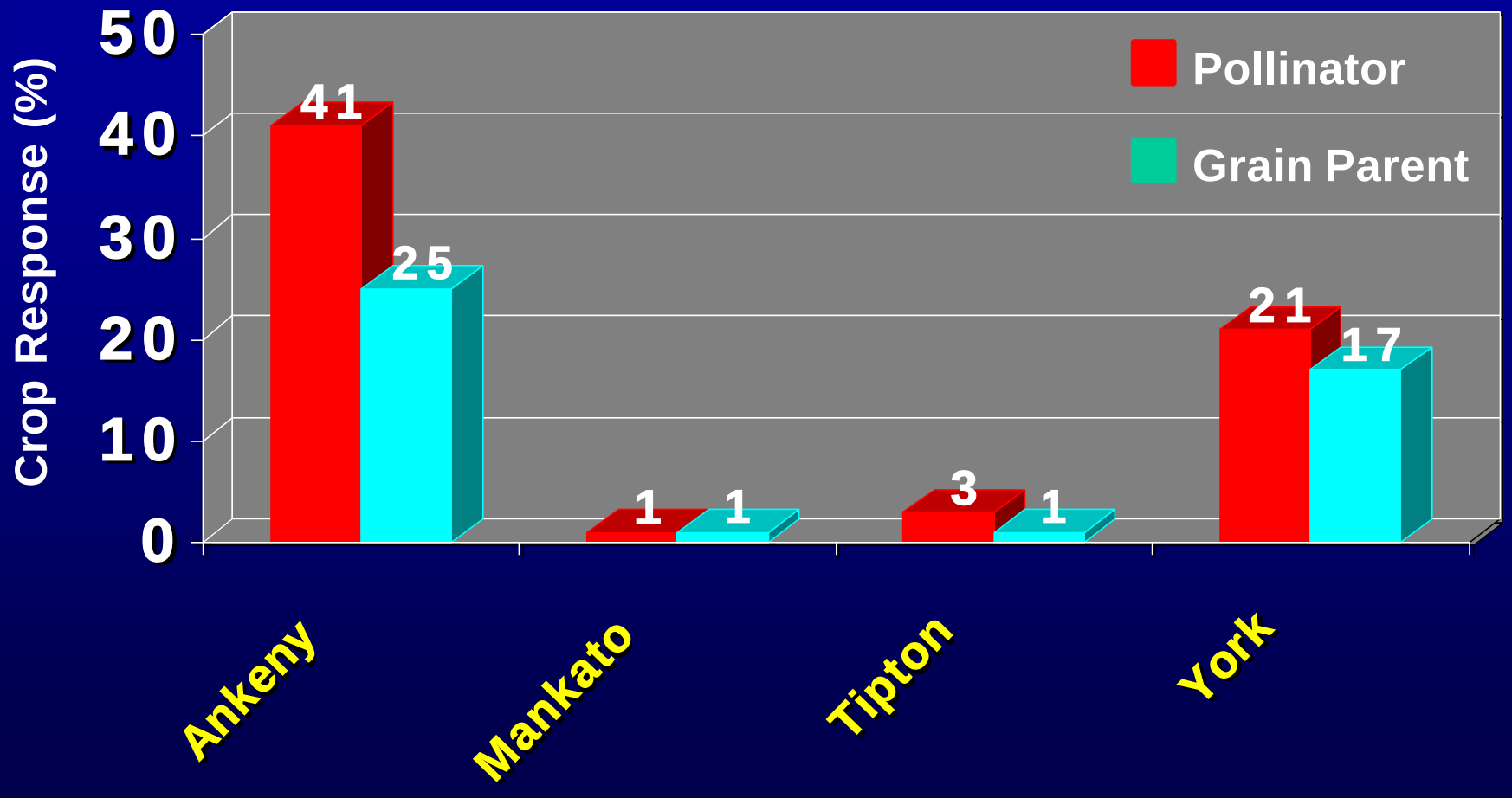
Herbicide Treatments

Herbicide	Herbicide Family	Material	Rate/Acre	Timing
Metolachlor + Atrazine	Amide	Bicep II Magnum	2.1 qt	PRE
Acetochlor + Atrazine	Amide	Harness Xtra	2.3 qt	PRE
Isoxaflutole	Pigment Inhibitor	Bicep II Magnum Balance	2.1 qt 2 oz	PRE PRE
Nicosulfuron + Rimsulfuron + Atrazine	Sulfonylurea	Bicep II Magnum Basis Gold COC 28% UAN	2.1 qt 14 oz 1 qt 2 qt	PRE V4 V4 V4
Dicamba	Growth Regulator	Bicep II Magnum Banvel	2.1 qt 1 pt	PRE V4

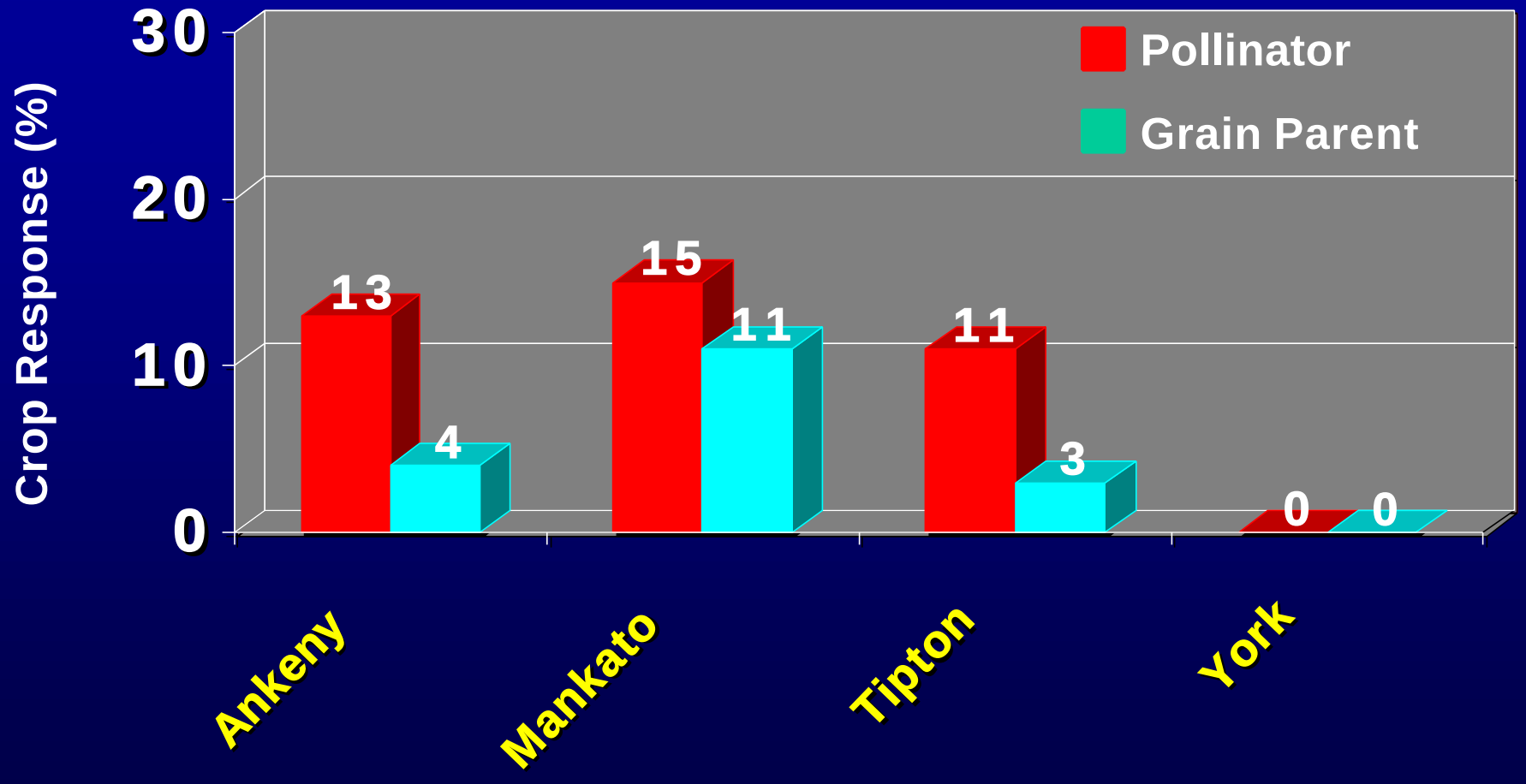
Avg. all locations (1998-99)



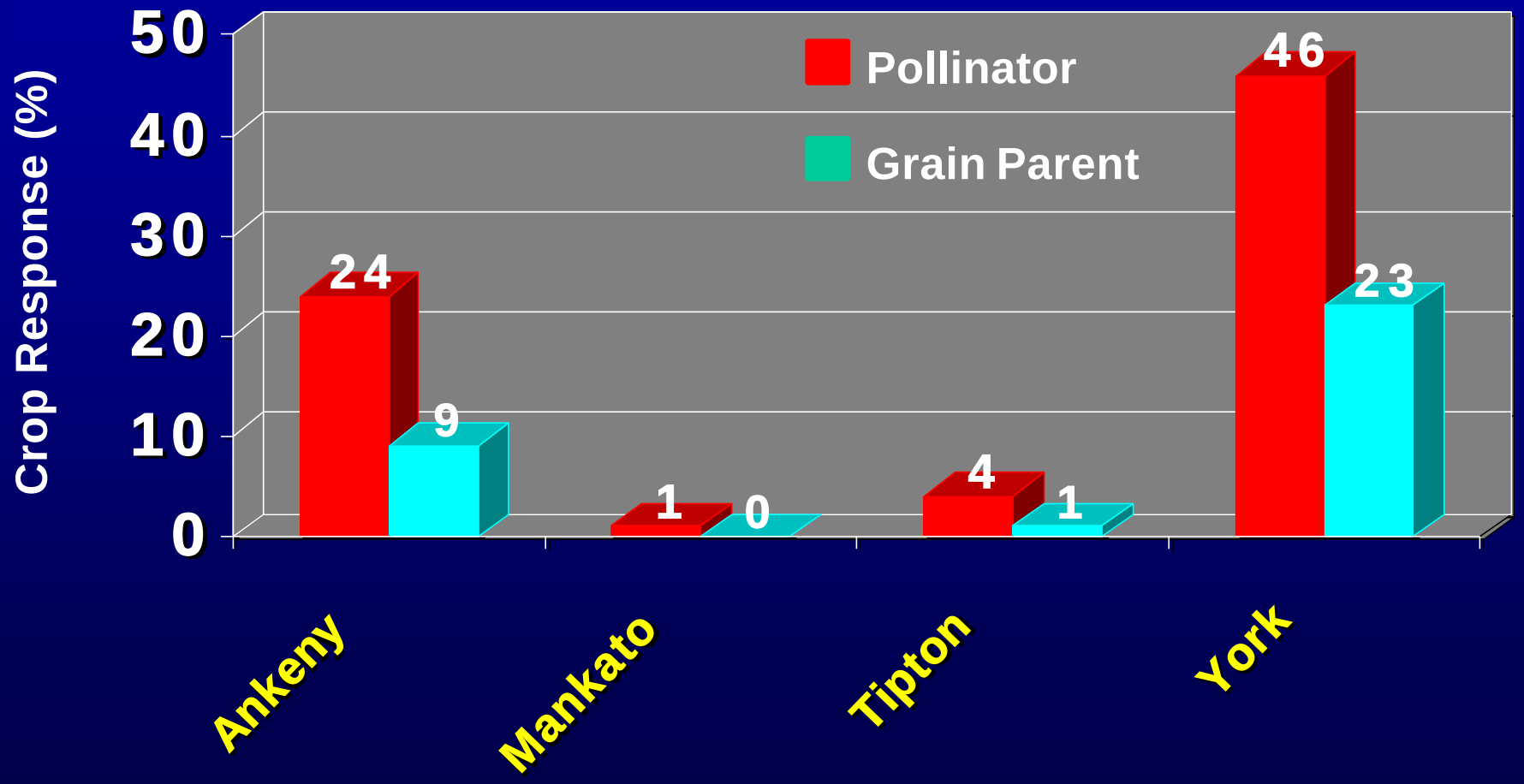
1998 Dicamba



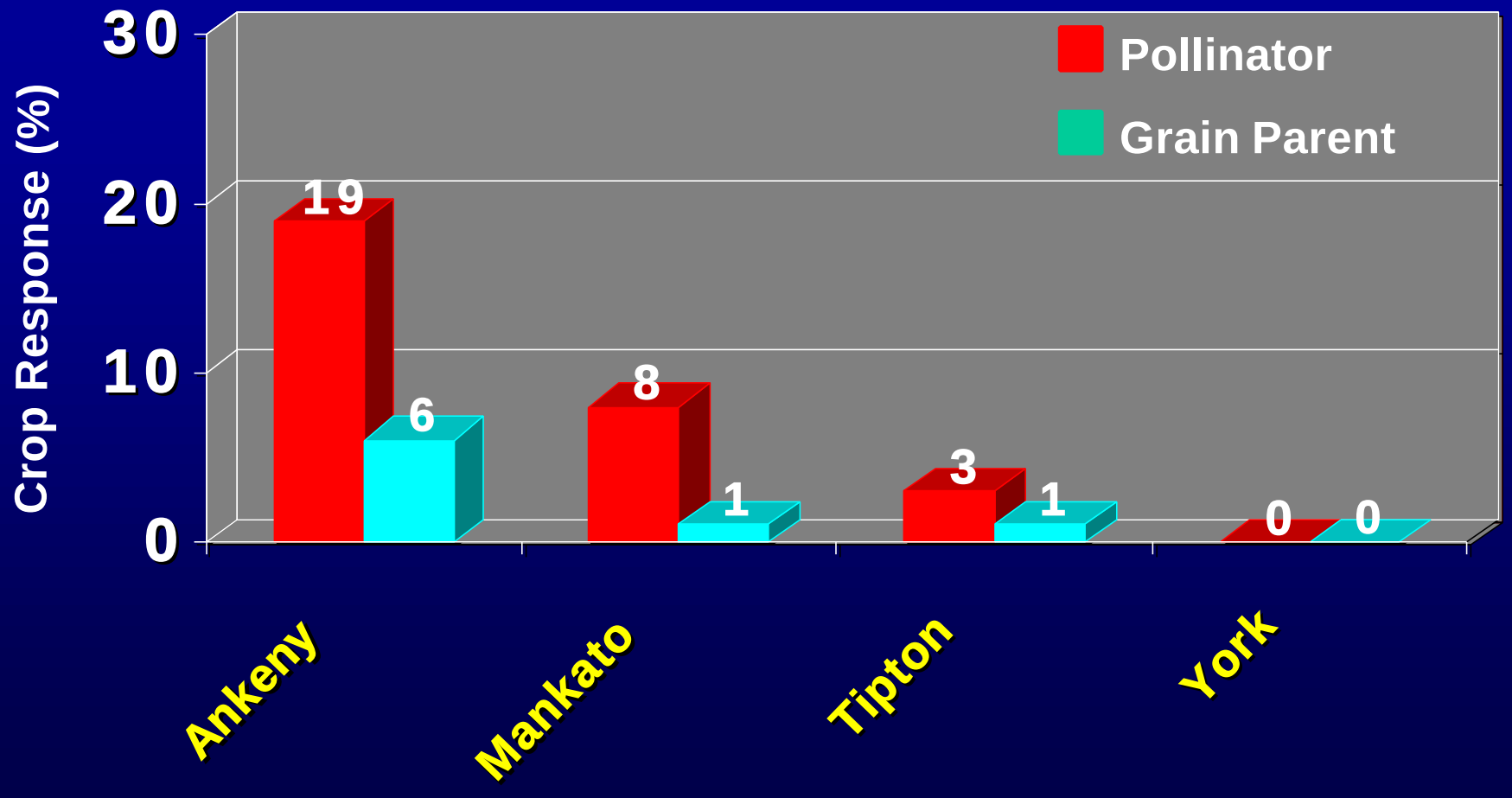
1999 Dicamba



1998 Isoxaflutole



1999 Isoxaflutole



HOTC Blend Corn Hybrid-Herbicide Management Guide

				Herbicide Family			
HOTC	CRM	Specialty Segment	Base Genetics	Amide	GR	PI	SU
37H96	97	HOTC, Bt	37M81	●	▲	■	●
37H97	97	HOTC	37M81	●	▲	■	●
34B25	108	HOTC	34B23	●	▲	■	●
32R90	116	HOTC	3245	●	▲	■	●
32P77	117	HOTC	32P75	●	▲	■	●
32K26	117	HOTC	3223	●	▲	■	●
31T55	119	HOTC	3253	●	▲	■	●

● Adequate Tolerance ▲ Requires Careful Management ■ Crop Response Warning

Summary Points

- Results indicate that herbicides from amide and sulfonylurea families can be used (following label guidelines) on TC Blends.
- In 1998, isoxaflutole caused significant crop response at two locations and at one location in 1999. Adverse environmental conditions after isoxaflutole application was the main cause for crop response.
- Dicamba caused significant crop response in 1998. Minor crop response was noticed in 1999.