Evaluation of Reduced Fall-Timed, Tillage Operations

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Approaching No-Till: Fresh Market tomatoes w/ buried drip irrigation

Major Challenges for Processing tomato growers:

- ✓ Furrow irrigation w/ high residue
- ✓ Weed control w/out cultivation
- ✓ Mechanical harvest w/ residue & minimally disturbed soils


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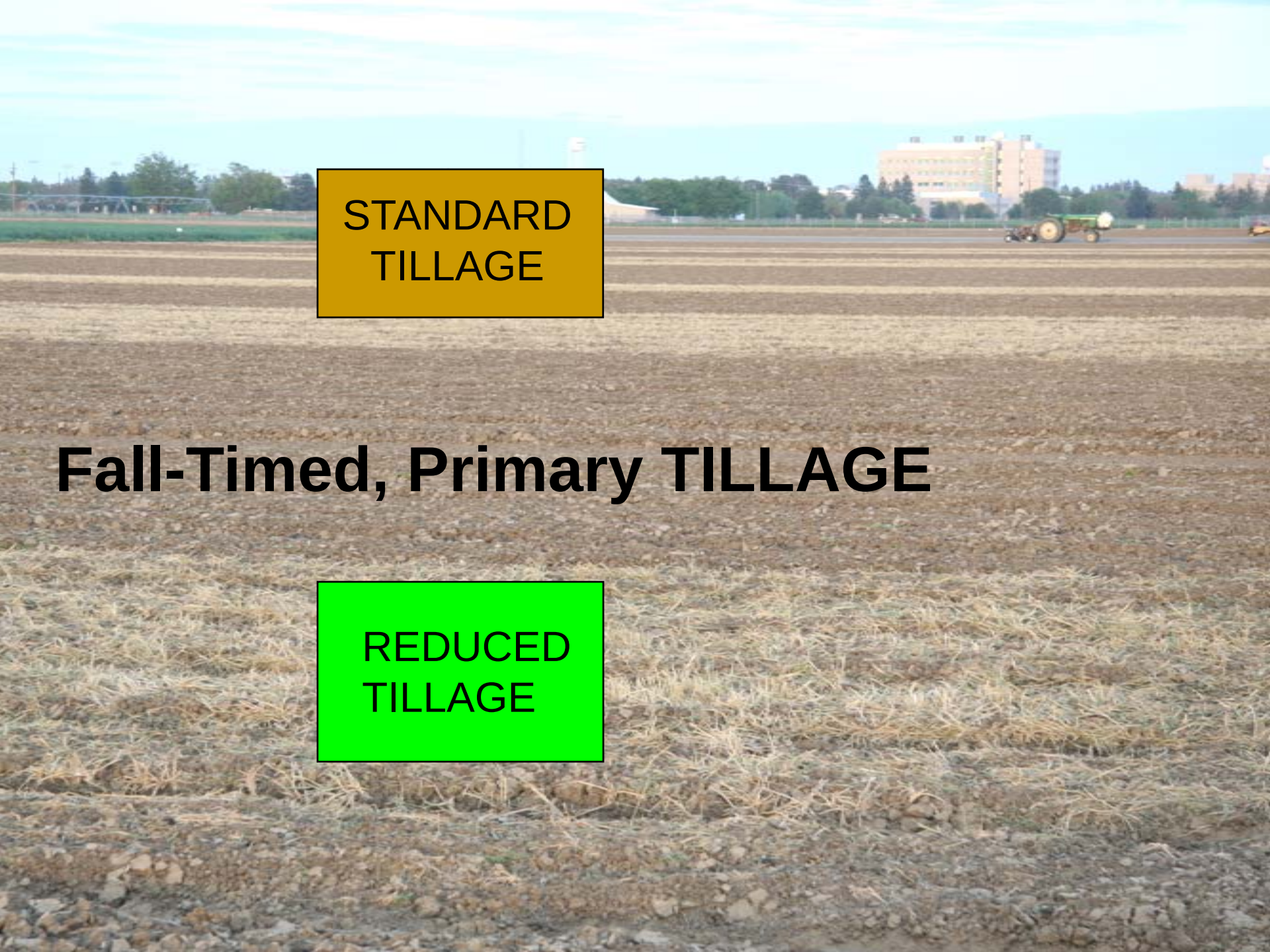
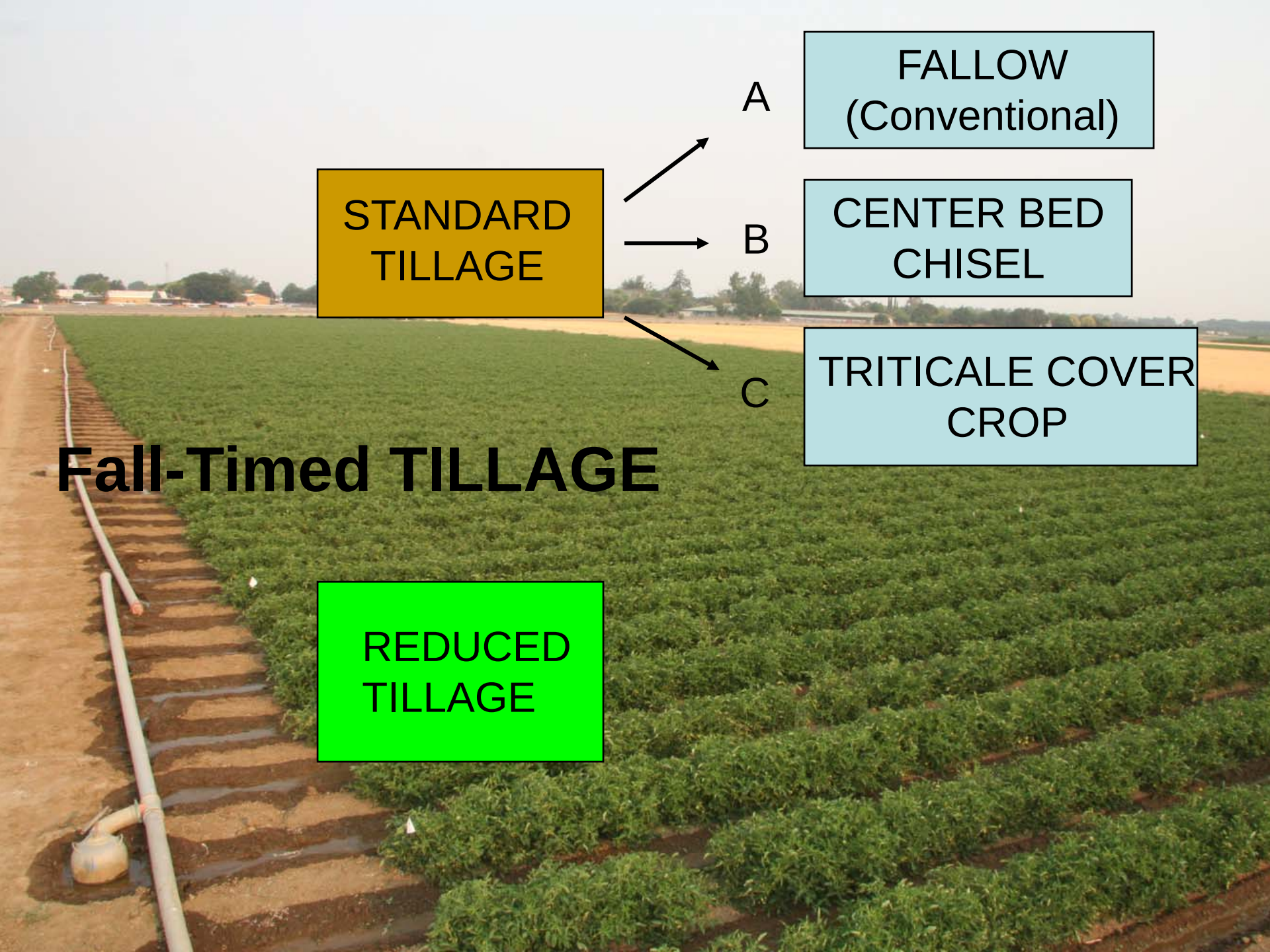
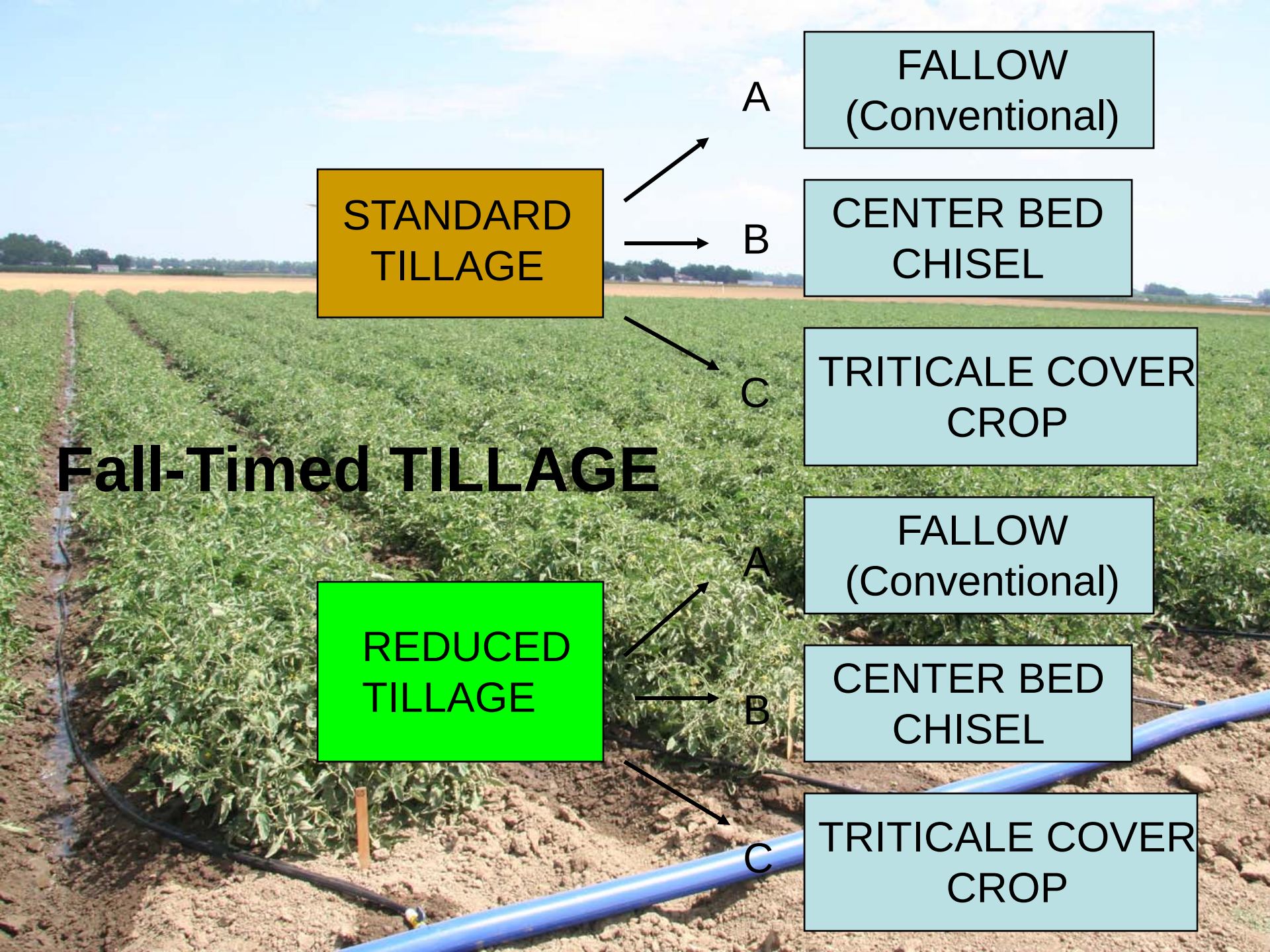

STANDARD TILLAGE
Fall-Timed, Primary TILLAGE
REDUCED TILLAGE


STANDARD TILLAGE
A
FALLOW (Conventional)
B
CENTER BED CHISEL
C
TRITICALE COVER CROP
Fall-Timed TILLAGE
REDUCED TILLAGE


Fall-Timed TILLAGE
STANDARD TILLAGE
A
FALLOW (Conventional)
B
CENTER BED CHISEL
C
TRITICALE COVER CROP
REDUCED TILLAGE
A
FALLOW (Conventional)
B
CENTER BED CHISEL
C
TRITICALE COVER CROP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Reduced Fall Tillage Comparison, UC Davis, 2007

Treatment Tillage		Net Yield (Tons/A)
Standard Till	Chisel Center	23.8
Standard Till	none	25.2
Reduced Till	Chisel Center	24.5
Reduced Till	none	24.1
Standard till		25.9
Reduced till		24.3
Probability		NS
	Chisel Center	24.2
	none	24.6
Probability		NS
	Interaction	NS
	%CV	11

- ✓ Similar yield between tillage systems
- ✓ Bed chisel – no response in 1st year
- ✓ Slight reduction in PTAB color, brix, and early plant growth

Reduced Fall Tillage Comparison
Effect on Yield (tons/A)
UC Davis, 2008

	Tillage Method		
	Conventional	Reduced	
Chisel (bed center)	33.5 z	40.1	a
Triticale	32.4 z	27.5	b
Fallow	30.9 z	31.1	b
LSD (@ 0.05)	5.0	7.5	

Results: Tillage Trials, UC Davis 2007 & 2008

- ✓ Comparable fruit yields between standard vs. reduced fall tillage.
- ✓ Benefit of single chisel in bed center w/ reduced tillage system?

Future Plans:

- ✓ Continue on UC Davis campus field site
- ✓ Expand testing into grower fields

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T S & L
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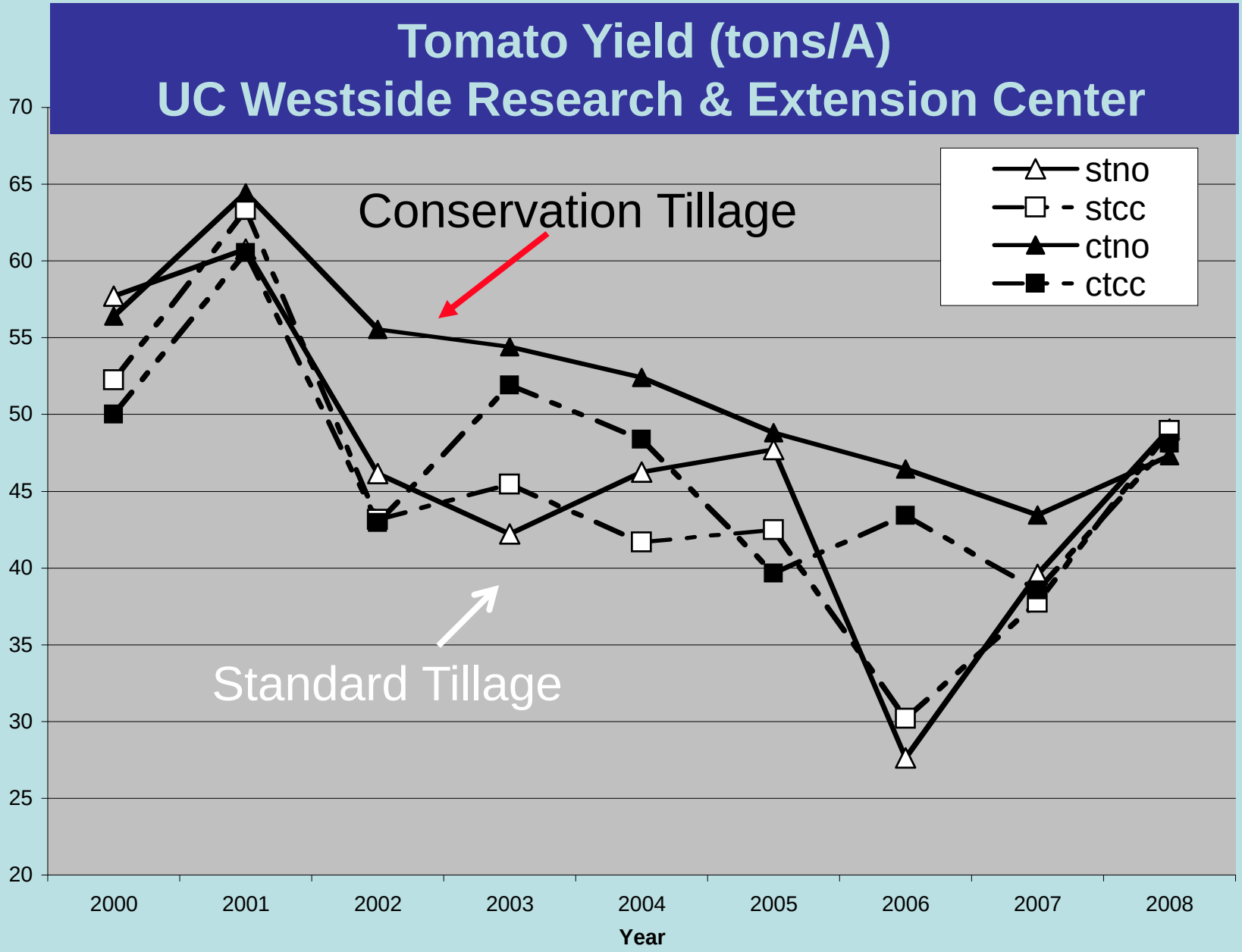
Strip-tilling cover crop ahead of transplanting tomatoes
Sano Farms, Firebaugh, 2006

Strip-till planted processing tomatoes
Firebaugh, CA 2006


PROCESSING TOMATOES
STRIP-TILL PLANTED INTO
TRITICALE COVER CROP
FIREBAUGH, CA 2005


Tomato Yield (tons/A)
UC Westside Research & Extension Center
Conservation Tillage
Standard Tillage
stno
stcc
ctno
ctcc
70
65
60
55
50
45
40
35
30
25
20
2000
2001
2002
2003
2004
2005
2006
2007
2008
Year

The End