Post-emergence N applications to corn

Options:

1. Sidedress between rows

2. Drop nozzles/tubes between rows

3. Broadcast dry urea/AN/AS

4. Broadcast 28-32% UAN

Questions:

- rate
- time
- source
- placement

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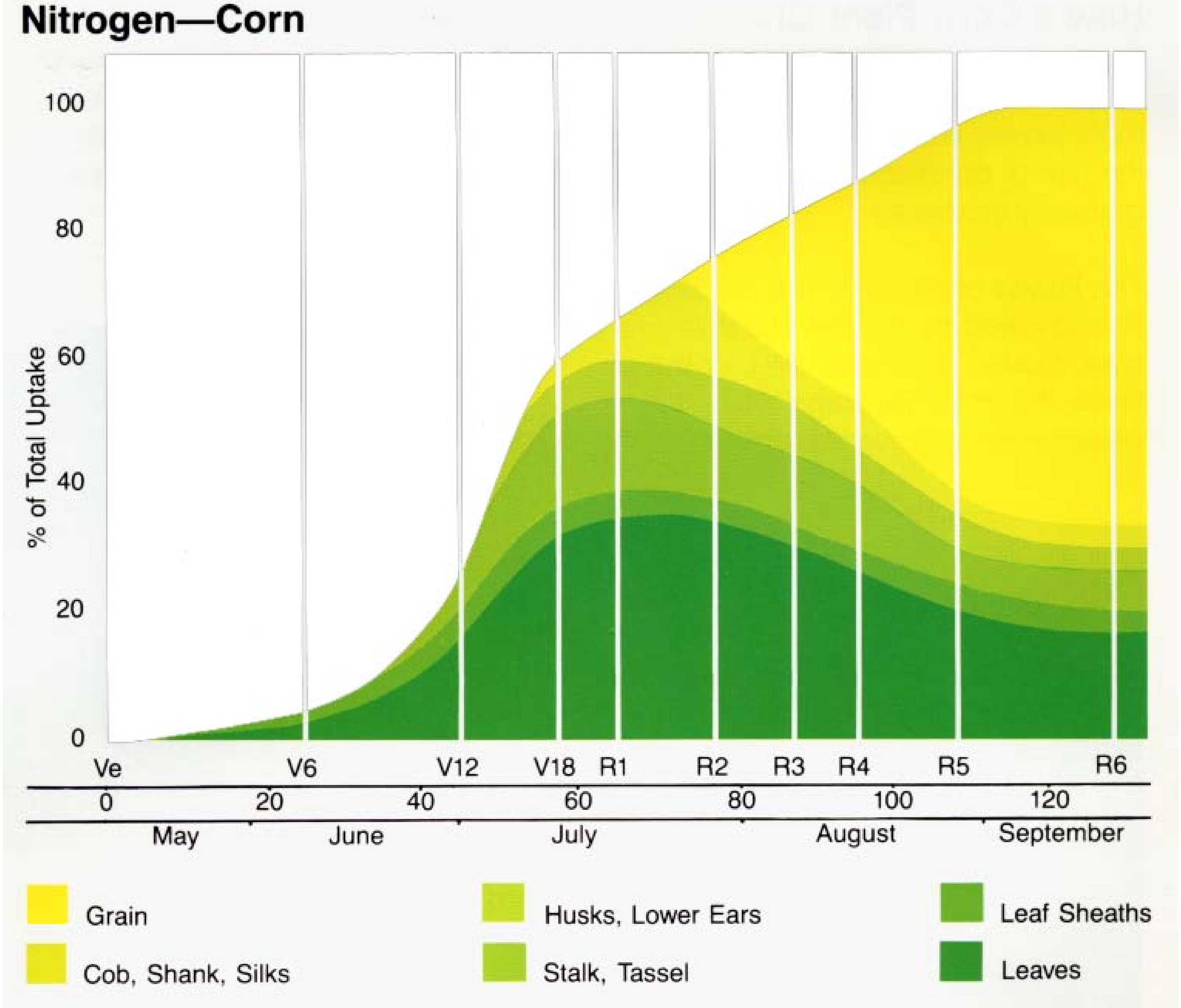
Nitrogen uptake of corn



Ritchie, Hanway and Benson, 1989

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Time for best response:

Week after planting	Yield (bu/a)
5	101
6	100
7	95
8	102
9	86
10	72
11	57

Jung et al. 1972; average of 4 N rates

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Best time vs. need:

Stage	dae	More defic	Less defic
		-- yield / bu/a --	
V3	12	165	175
V7	28	164	170
V12	43	168	170
V16	53	158	164
VT	60	151	165
R1.5	71	153	166
R3	83	135	147
R4.5	95	122	150

Binder et al., 2000; avg of 2 years

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How late is too late?

Stage	dae	Yield inc. from N
		bu/a
V3	12	35.4
V7	28	32.6
V12	43	34.2
V16	53	26.2
VT	60	23.3
R1.5	71	25.0
R3	83	6.4
R4.5	95	1.9

Binder et al., 2000; avg of 2 years

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Damage from UAN vs. time

UAN N rate	Time of application	
	4 leaf	8 leaf
lb/a	-- Yield bu/a --	
0	150	
30	146	149
60	149	143
90	148	139
120	145	132
150	140	121

Randall 1977,1978; total N for all plots = 150 lb N/a

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Recommendations:

1. Not more than 90 lb N/a alone at 4-5 leaf stage

2. Not more than 60 lb N/a with atrazine

3. Not more than 60 lb N/a at 8 leaf stage

Randall, 1978

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Summary, post-emergence N applications

* Best approach
    - Apply before max need
    - Inject or use drops
    - Avoid root pruning

* When deficient, can apply up to R 1.5 for some benefit

* With UAN, follow rate guidelines

* With urea or AN some damage likely related to rate; apply when foliage is dry

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