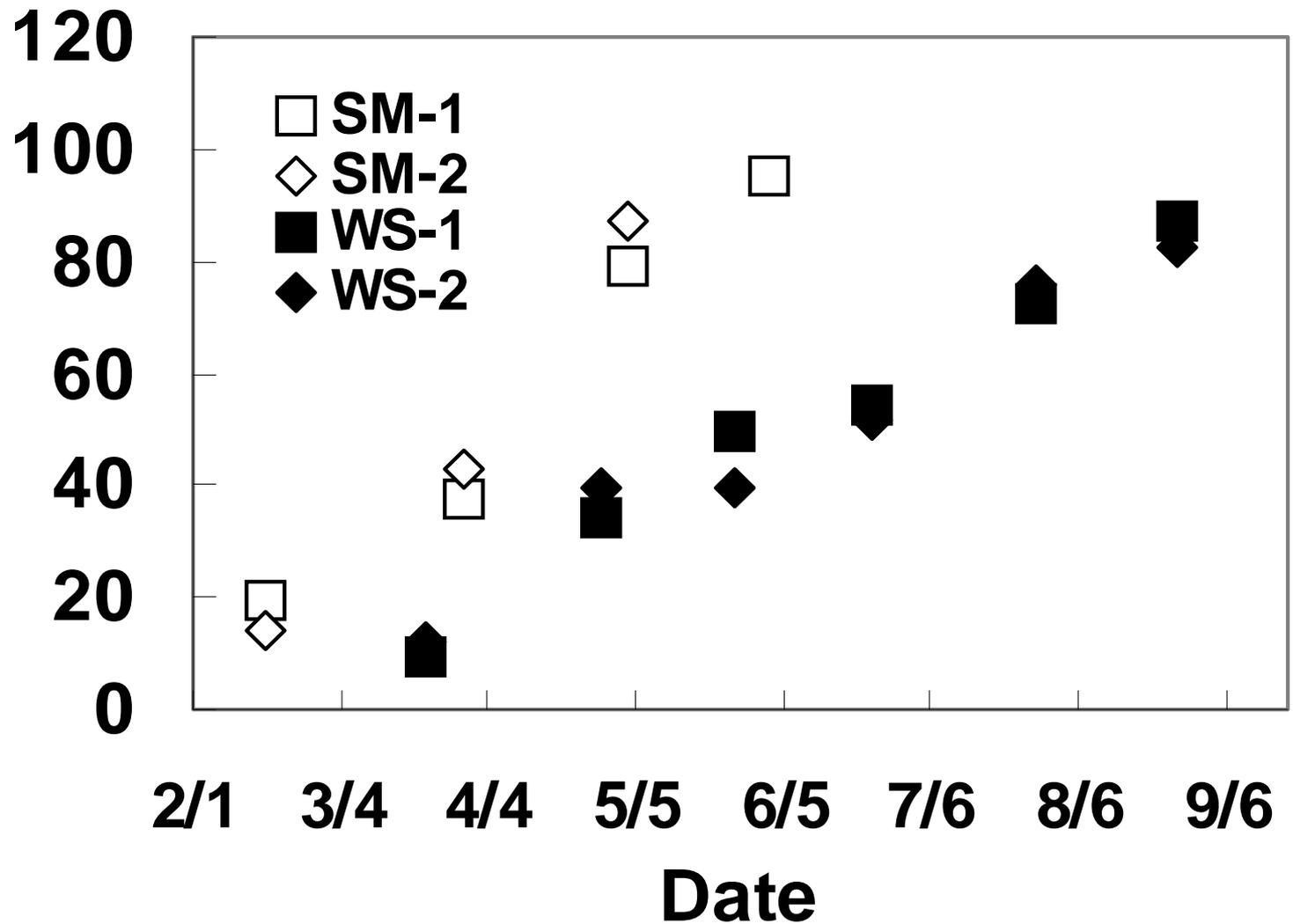


2010 Strawberry field monitoring studies :

- Field survey to monitor strawberry nutrient uptake, and grower irrigation and fertilization practices**
- Field survey to revise leaf and petiole nutrient concentration standards**

**Vegetative N content
(lb/acre)**



In Santa Maria, total seasonal vegetative N uptake appears to be about 120-140 lb N/acre

Nutrients in strawberry fruit :

Each ton of fruit contains approximately:

- 2.5 lb N**
- 4.0 lb K**
- 0.6 lb P**

In a 30 ton/acre average yield, with 15% culls :

- 90 lb N**
- 140 lb K**
- 20 lb P**

Approximate seasonal crop nutrient uptake :

| | Total crop uptake (lb/acre) | | |
|-------|-----------------------------|----|-----|
| | N | P | K |
| Plant | 130 | 20 | 90 |
| Fruit | 90 | 20 | 140 |
| Total | 220 | 40 | 230 |

Daily uptake / acre during active growth is about :

- 1.2 lb N
- 1.2 lb K
- 0.2 lb P

Preplant fertilization :

Do you need P and K ?

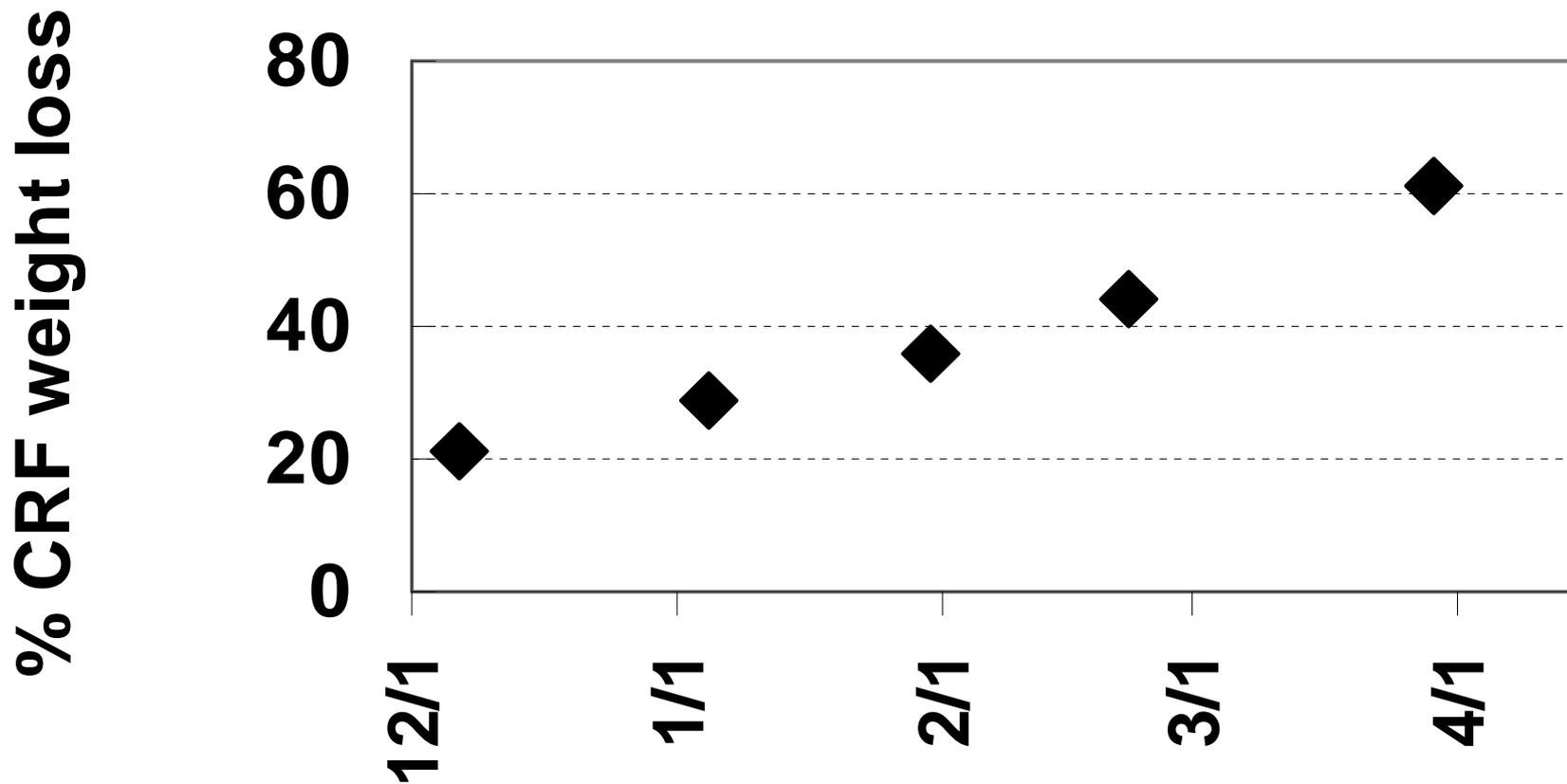
How much controlled release N is needed ?

Which fertilizer has the best release rate ?

Many vegetable soils are high in P and K :

| Field | Olsen P (PPM) | Exchangeable K (PPM) |
|--------------|----------------------|-----------------------------|
| 1 | 27 | 75 |
| 2 | 32 | 48 |
| 3 | 33 | 117 |
| 4 | 43 | 99 |
| 5 | 62 | 198 |
| 6 | 64 | 191 |
| 7 | 71 | 184 |
| 8 | 75 | 193 |
| 9 | 76 | 68 |
| 10 | 79 | 117 |
| 11 | 83 | 269 |
| 12 | 103 | 232 |

**For Agriform 18-8-13 in Watsonville,
buried November 4 :**

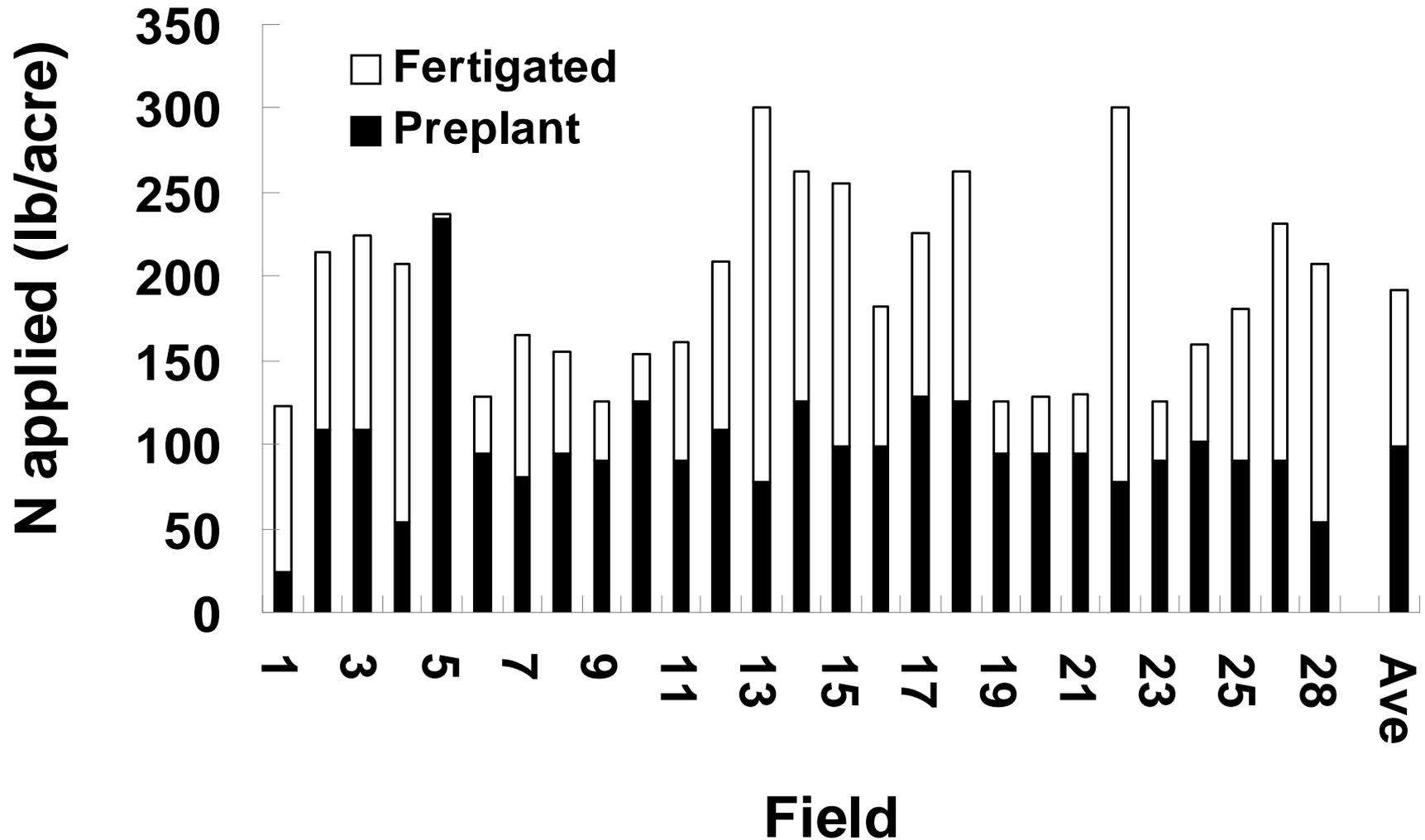


Managing fertigation :

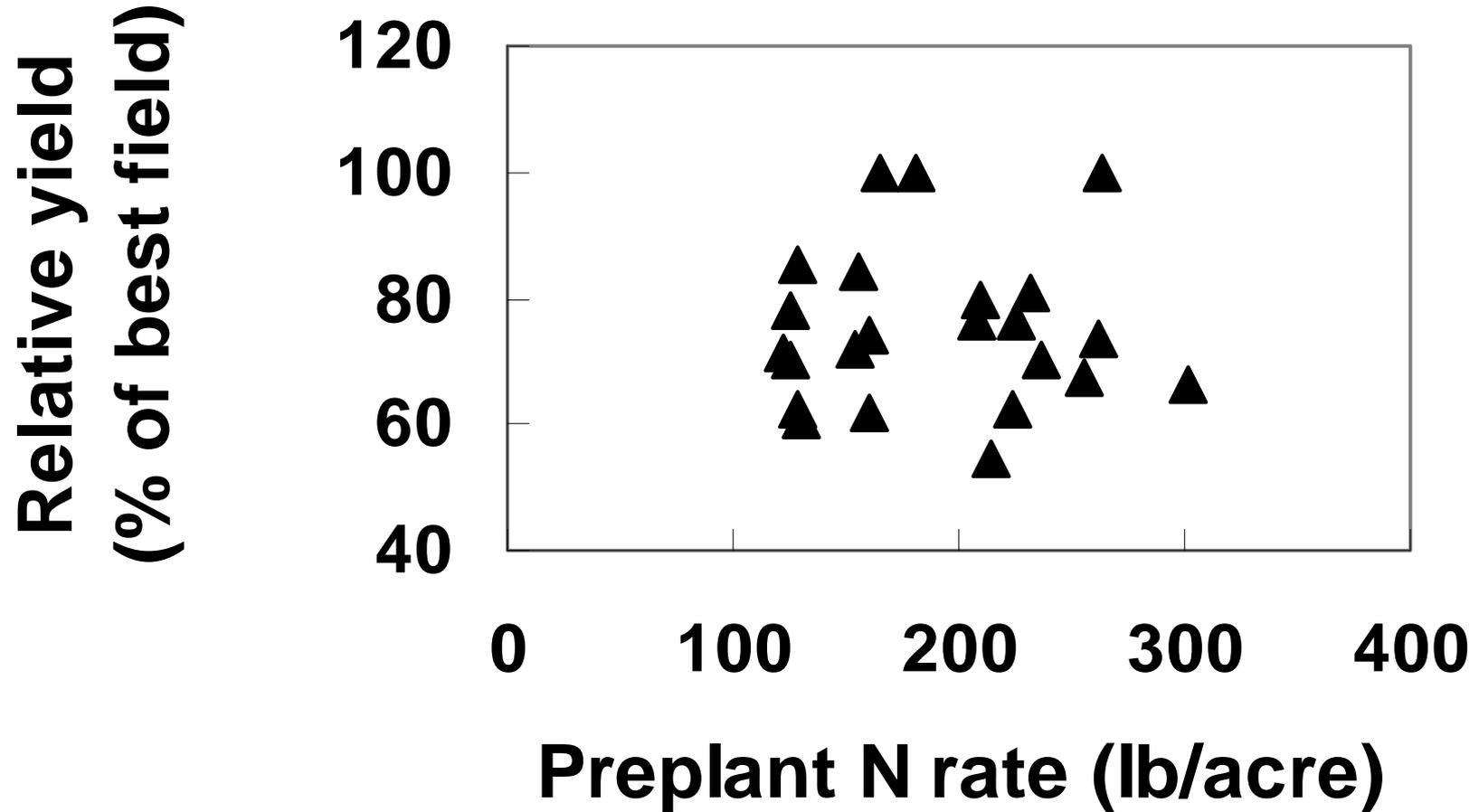
Crop uptake is about 1.2 lb N/acre per day

- **Controlled release N declines after March**
- **Irrigation water can supply a significant amount of N :**
over the season, water can deliver
 - **30 to 40 lb N/acre @ 10 PPM NO₃-N**
 - **60 to 80 lb N/acre @ 20 PPM NO₃-N**
- **Only a modest amount of fertigation should be necessary**

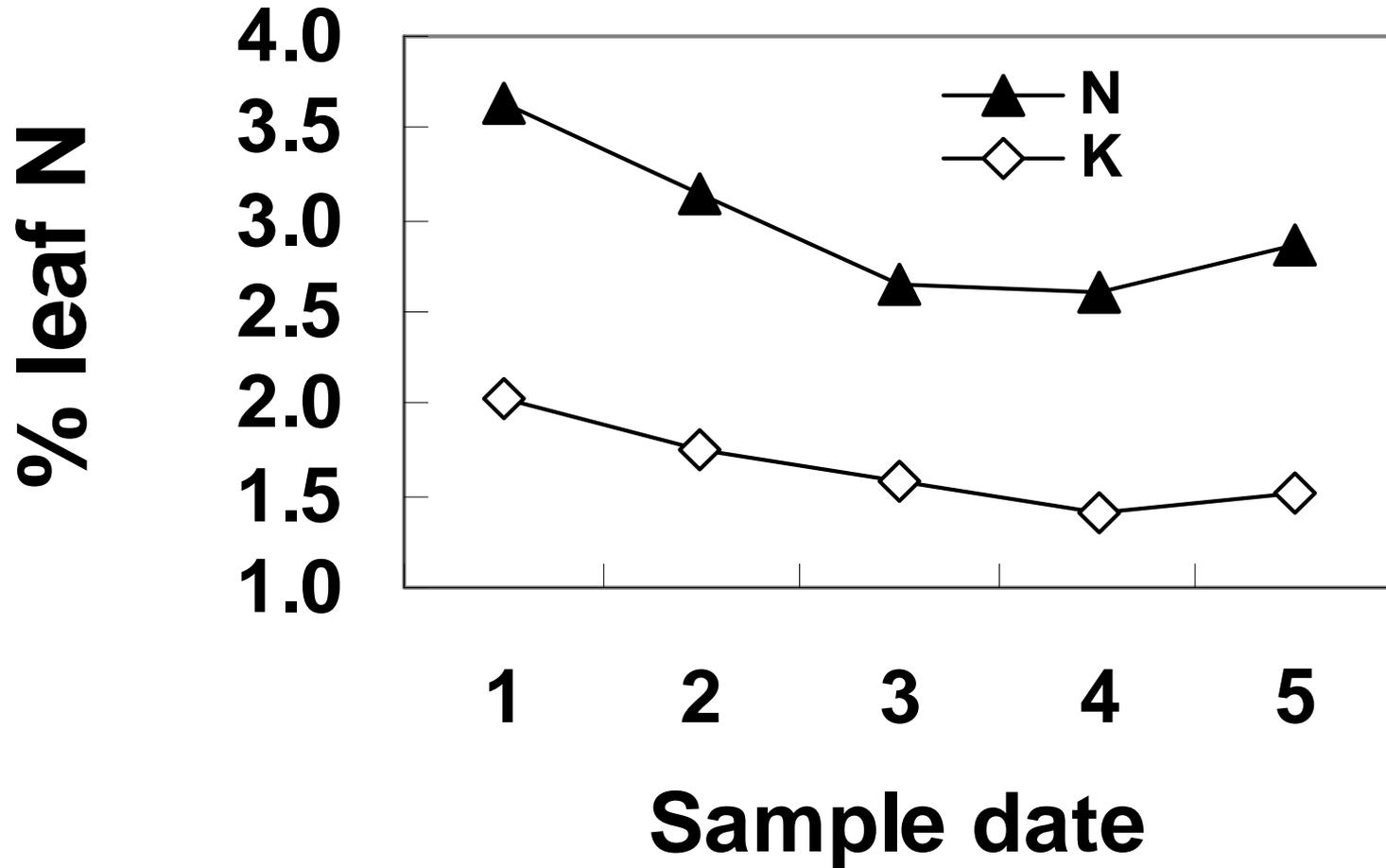
How are strawberry growers managing fertilizer ?



How does N fertilization rate affect yield ?



Leaf nutrient concentration trends over the season :



2010 'Albion' leaf nutrient concentration at midseason :

| | Critical value UC Pub. 4098 | 2010 field average |
|----------------------|--|-------------------------------------|
| % Nitrogen | 2.80 | 2.66 |
| % Phosphorus | 0.10 | 0.36 |
| % Potassium | 1.00 | 1.57 |
| % Calcium | 0.30 | 1.40 |
| % Magnesium | 0.20 | 0.34 |
| PPM Zinc | 20 | 18 |
| PPM Manganese | 30 | 245 |
| PPM Iron | 50 | 120 |

Conclusion: current 'critical values' need revision