Prune Orchard Nitrogen Budget
to Assist in
Fertilizer Application Decision

Purpose:

Provide general guidelines for determining in-season prune orchard nitrogen fertilizer needs.

Timing:

April 15 – once bloom and set have finished and the threat of frost is gone.

Procedure:

Enter the appropriate information into the model on the web or by hand onto the sheets provided below. Some information must come from production records (i.e. crop load estimates, past leaf nitrogen levels, etc), while other information comes from current year analysis (i.e., well water nitrate, etc.). Keep all sheets, including the End-of-Year Report Card, for your records.

Treatment Timing and Rate(s):

Apply suggested nitrogen fertilizer – either as a single or split application before mid-June. Review results in the fall after harvest, AND USE THOSE RESULTS TO ADJUST MODEL FOR EACH BLOCK IN FUTURE YEARS. Use the "Report card for Prune Nitrogen Budget" that appears at the end of the budget worksheet for review, future model adjustments, and record keeping.

Prune Orchard Nitrogen Budget…….Working Draft

ANNUAL TREE NITROGEN NEEDS

1. Crop load (predicted) Nitrogen Demand:
   - 1.0 dry ton/acre (+18#N/acre/year)
   - 1.5 dry ton/acre (+27#N/acre/year)
   - 2.0 dry ton/acre (+36#N/acre/year)
   - 2.5 dry ton/acre (+45#N/acre/year)
   - 3.0 dry ton/acre (+54#N/acre/year)
   - 3.5 dry ton/acre (+63#N/acre/year)
   - 4.0 dry ton/acre (+72#N/acre/year)
   - 4.5 dry ton/acre (+81#N/acre/year)
   - 5.0 dry ton/acre (+90#N/acre/year) _____

2. Tree Nitrogen Demand (other than crop):
   - 5-10 years old (+50#N/acre/year)
   - > 10 years old (+30#N/acre/year) _____

3. Tree Nitrogen Needs (add 1 and 2) _____

NITROGEN SOURCES AVAILABLE (OTHER THAN FERTILIZER)

4. Nitrogen in irrigation water:
   - Surface water (add 0 N)
   - Well – water
     Well-water NO_3-N___X___ acre/ft water use X 2.7 _____(#N/acre)_

5. Tree N available for new growth **(info from previous year):**
   - July leaf analysis above 2.2% N leaf
     - No potassium dieback (add 20# N/acre)
     - Moderate potassium dieback (add 10# N/acre)
     - Severe potassium dieback (add 0# N/acre)
   - July leaf analysis below 2.2% N leaf
     - No potassium dieback (add 10#N/acre)
     - Moderate potassium dieback (add 5#N/acre)
     - Severe potassium dieback (add 0#N/acre)_____

6. Native soil N available for tree uptake:
   - Sandy loam (add 35#N/acre)
   - Loam/Clay loam (add 50#N/acre) _____

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7. Non-fertilizer N available in orchard (add 4,5, and 6)
8. Orchard N needs (pounds N/acre) (subtract 3 from 7) _____
   If 8.<0, then **apply NO fertilizer nitrogen**.
   If 8.>0, then go to 9.

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9. Fertilizer delivery and predicted tree uptake efficiency:
   - Broadcast fertilizer followed by flood irrigation:
     - Single application (divide 8. by 0.20)
     - Split application (divide 8. by 0.30)
   - Fertigation via micro-sprinkler or drip system:
     - Single application (divide 8. by 0.40)
     - Spit application (divide 8. by 0.50)

10. Orchard fertilizer N needs (pounds N/acre) _____

End-of-Year Report card for Prune Nitrogen Budget

Crop year _____

Block _____

Production for block (dry tons/acre) _____

Estimated production (used in model) _____

Harvest date: _____

Fruit Pressure at Harvest (pounds) _____

Water analysis results (ppm nitrate) _____

Spring leaf N analysis results – if taken (%N) _____

Summer leaf N analysis results (%N) _____