

# Hazard Index for Crops

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# Project Goals

- **Provide Growers with potential Nitrate Hazard for Crops they may be growing**
- **Reminder-Crop Hazards are One of Three Index Numbers for the Overall Hazard Index**
- **Ultimate Goal is to Reduce Nitrate in Groundwater**

# Description

- **Crops were divided into**
  - **Field Crops**
  - **Vegetable Crops**
  - **Tree and Vine Crops**

# For All Crops

- **We looked at:**
  - Rooting System Depth
  - Nitrogen Recommendation
- **Ratio 1**
  - N in crop tops / recommended N
- **Ratio 2**
  - Fraction of crop top N removed with the harvested portion of the crop

# Tree and Vine Crops

- In addition we looked at the N in the leaf deposits left in place
  - Is the leaf material removed?
  - Is the N available for subsequent crops?

# Other Factors

- **Harvested During Peak N Uptake**
- **Denitrification Inherent in Crop**

# Technology or Formulas?

- We Used Old Information



# Technology or Formulas?

- We Used New Information





# Technology or Formulas?

- There were not any formulas

Recommended N / Rooting Depth x

Ratio 1 / Ratio 2 ⌚ Anything Useful

# Procedures

- **Review of the Literature**
- **Essentially giving a High, Medium or Low categorization of each factor for each crop**
- **Entering the Information in Spreadsheets**

# Procedures

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- **Give the Crop an Overall Hazard Index Rate**
- **Sent Information to Experts for Review**
- **Compiled the Opinions and Revised the Hazard Index Score**

# Lets Now Look at Some Crops

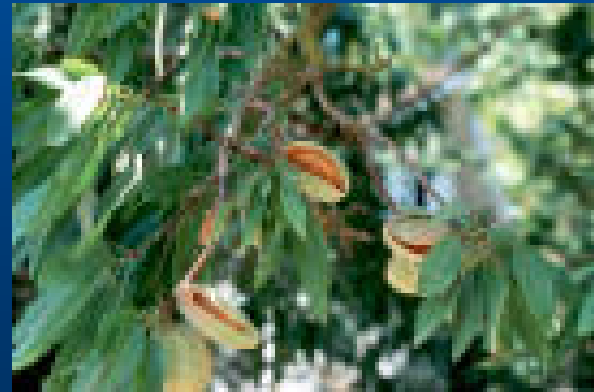
- **Tree and Vine –  
Grapes**
  - **Low N Requirement**
  - **Deep Rooting**
  - **High Ratio 1**
  - **Medium Ratio 2**
  - **Small Leaf Deposits**



**HI = 1**

# More Crops

- **Tree and Vine – Almonds**
  - Higher N Recommendation
  - Deep Rooted
  - High Ratio 1
  - Low Ratio 2
  - Large leaf Deposits



HI = 2

# More Crops

- **Vegetable - Lettuce**
  - High N requirement
  - Shallow roots
  - Ratio 1 Medium
  - Ratio 2 Low
- **Harvested During Peak N Uptake**



HI = 4

# More Crops

- **Vegetable – Broccoli**
  - Moderate N Requirement
  - Shallow Rooted
  - Ratio 1 High
  - Ratio 2 Low
- **Harvested During Peak N Uptake**



HI = 4

# More Crops

- **Tree Crop – Avocado**
  - Deep Rooted
  - High Portion of N Applied is Incorporated
  - Low N in Harvested
  - Large Leaf Deposits



**HI = 2**



# More Crops

- **Field Crops - Alfalfa**
  - No N Recommended
  - Deep Rooted
  - Ratio 1 High
  - Ratio 2 High
- **Seed or Hay ??**



HI = 1

# More Crops

- **Vegetable Crops - Tomato**
  - Moderate Rooting Depth
  - Moderate N Requirement
  - Ratio 1 High
  - Ratio 2 Medium

HI = 3



# More Crops

- **Vegetable Crops - Radish**
  - Shallow Rooted
  - Low Nitrogen Requirement
  - Ratio 1 High
  - Ratio 2 Medium

HI = 3



# More Crops

- **Tree and Vine Crops - Lemon**
  - Deep Rooted
  - Moderate to High N Requirement
  - Ratio 1 High
  - Ratio 2 Low
  - Medium Leaf Deposits



HI = 3

# More Crops

- **Tree and Vine Crops - Dates**
  - Deep Rooted
  - Low Nitrogen Requirement
  - Ratio 1 High
  - Ratio 2 Medium
  - Leaf Deposits ?

HI = 1



# More Crops

- **Vegetables - Strawberries**
  - Shallow Rooted
  - Moderate to High N Requirement
  - Ratio 1 High
  - Ratio 2 Medium

HI = 4



# More Crops

- **Tree and Vine Crops – Blackberries**
  - Moderate Rooting Depth
  - Low to Moderate N Requirement
  - Ratio 1 High
  - Ratio 2 Low
  - Small Leaf Deposits

HI = 2



# More Crops

- **Vegetable Crops – Sweet Corn**
  - Moderate Rooting Depth
  - Moderate to High N Requirement
  - Ratio 1 High
  - Ratio 2 Medium
- **Harvested Closer to Peak Uptake**

HI - 3





# More Crops

- **Field Crops - Orchard Grass**
  - Deep Roots
  - High N Requirement
  - Ratio 1 Medium
  - Ratio 2 Medium
- **Massive N uptake in early spring**

HI = 2

# More Crops

- **Turf**

- **Dense Root Mass**
- **Medium to Deep Roots**
- **High N Taken Up**
- **N Left on Field After Harvest**

**HI = 2**