Department of
LAND, AIR AND WATER RESOURCES
University of California, Davis
Climate Change • Sustainable Agriculture
Environmental Quality • Landscape Processes

Nutrient Management Guidelines for Major Crops in California

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FREP / WPHA Conference 2013

Content

- Project Objectives
- FREP Database
- Fertilization Guidelines

Project Objectives

Make research data and findings from different sources available to growers and crop advisors.

- Searchable database of FREP-funded projects
- Fertilization guidelines for major crops

Criteria:

- Online
- User-friendly
- Flexible design
- Concise summary of research results

The FREP Database:
Accessing the Database

http://www.cdfa.ca.gov/is/frep/

link

next

The FREP Database: Search Options

The FREP Database:
Search Options

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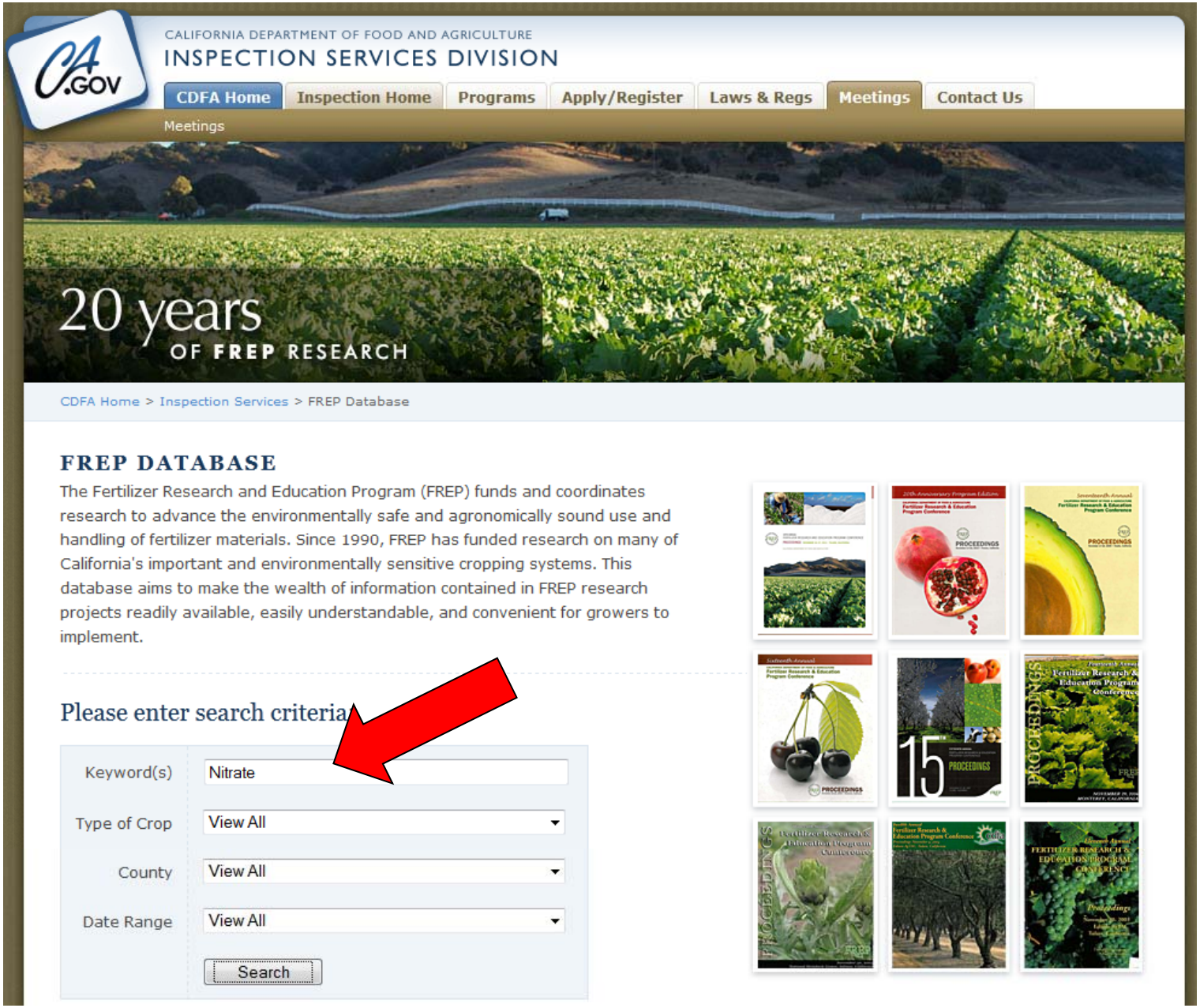
Search Options



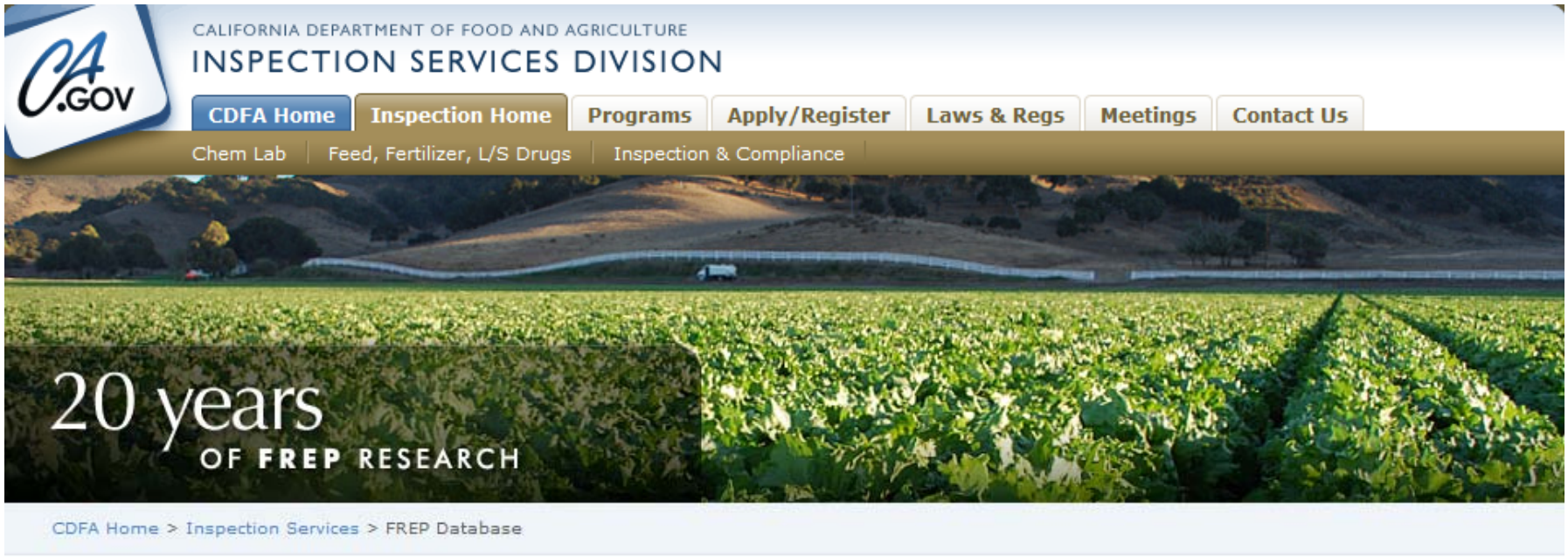
The FREP Database: Search Results

FREP DATABASE

Search results:

Study Title	ject County	Crop Type
Demonstration of Pre-Sidedress Soil Nitrate Testing as an N Management Tool	Monterey	Lettuce
Demonstration Program for Reducing Nitrate Leaching through Improvements to Irrigation Efficiency and Fertilizer/Cover Crop Management	Monterey	Lettuce
Determination of Best Nitrogen Management Practices for Broccoli Production in the San Joaquin Valley	Fresno	Broccoli
Development and Demonstration of Nitrogen Best Management Practices (BMP's) for Sweet Corn in the Low Desert	Riverside	Sweet Corn
Development and Promotion of Nitrogen Quick Tests for Determining Nitrogen Fertilizer Needs of Vegetables and Survey of Soil Residual Nitrate-Nitrogen Levels	San Benito, Monterey	Cabbage, Onion, Lettuce
Development of a Model System for Testing Foliar Fertilizers, Adjuvants and Growth Stimulants	Site independent	Arabidopsis used as model plant
Development of a Nitrogen Fertilizer Recommendation Model to Improve N-Use Efficiency and Alleviate Nitrate Pollution to	Yolo, Colusa	Almond

The FREP Database:
Report Summaries



STUDY RECORD

Demonstration of Pre-Sidedress Soil Nitrate Testing as an N Management Tool

Hartz, T.K., Department of Vegetable Crops, University of California, Davis

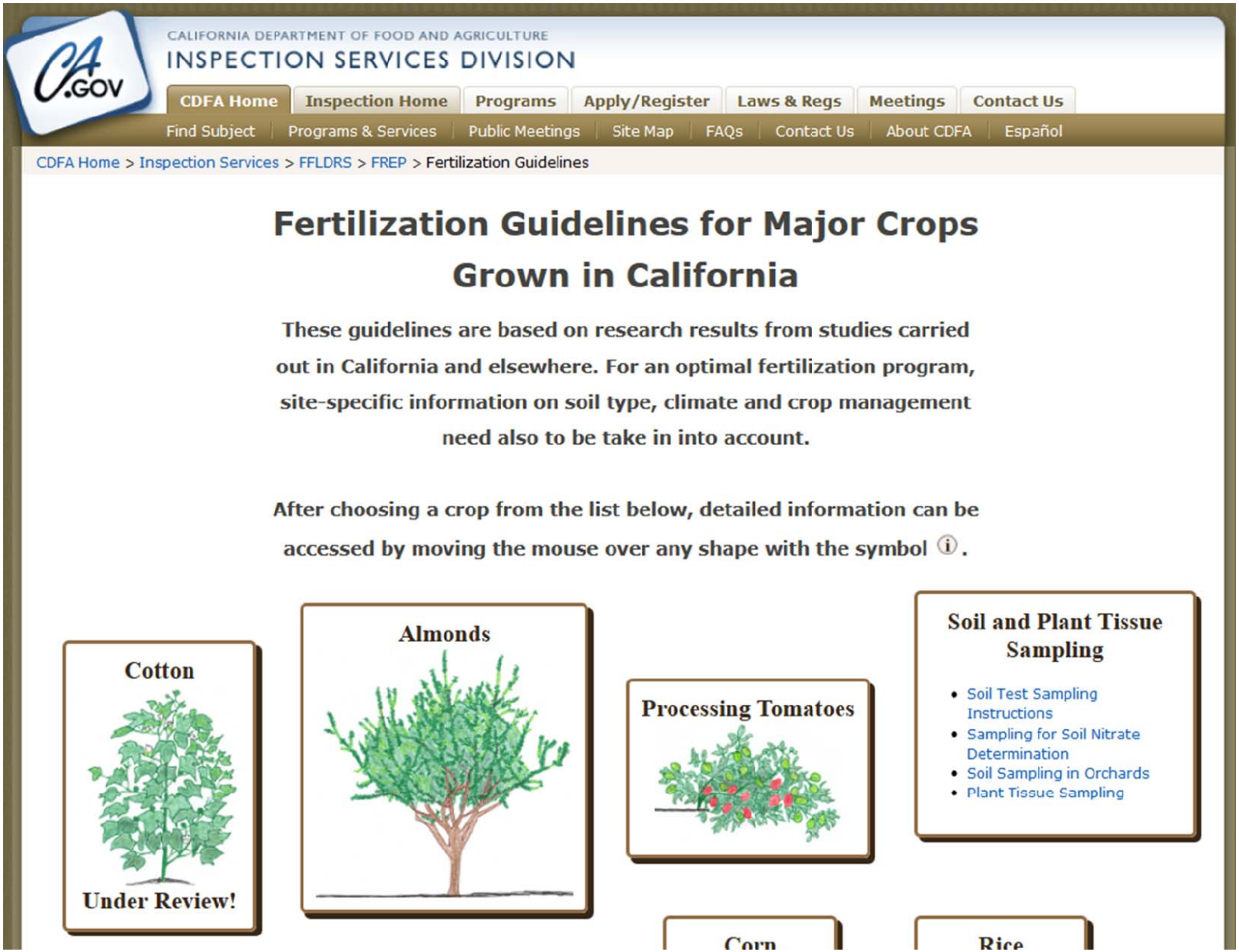
Project Highlights

- Sidedressing to lettuce can be delayed as long as residual soil NO_3-N in the top foot of soil exceeds 20 ppm.
- Maximum yields can be achieved in fields with lower soil NO_3-N levels by sidedressing only enough to raise soil NO_3-N concentration to 20 ppm.

Crop
Lettuce

County
Monterey

Fertilization Guidelines:
Start Page



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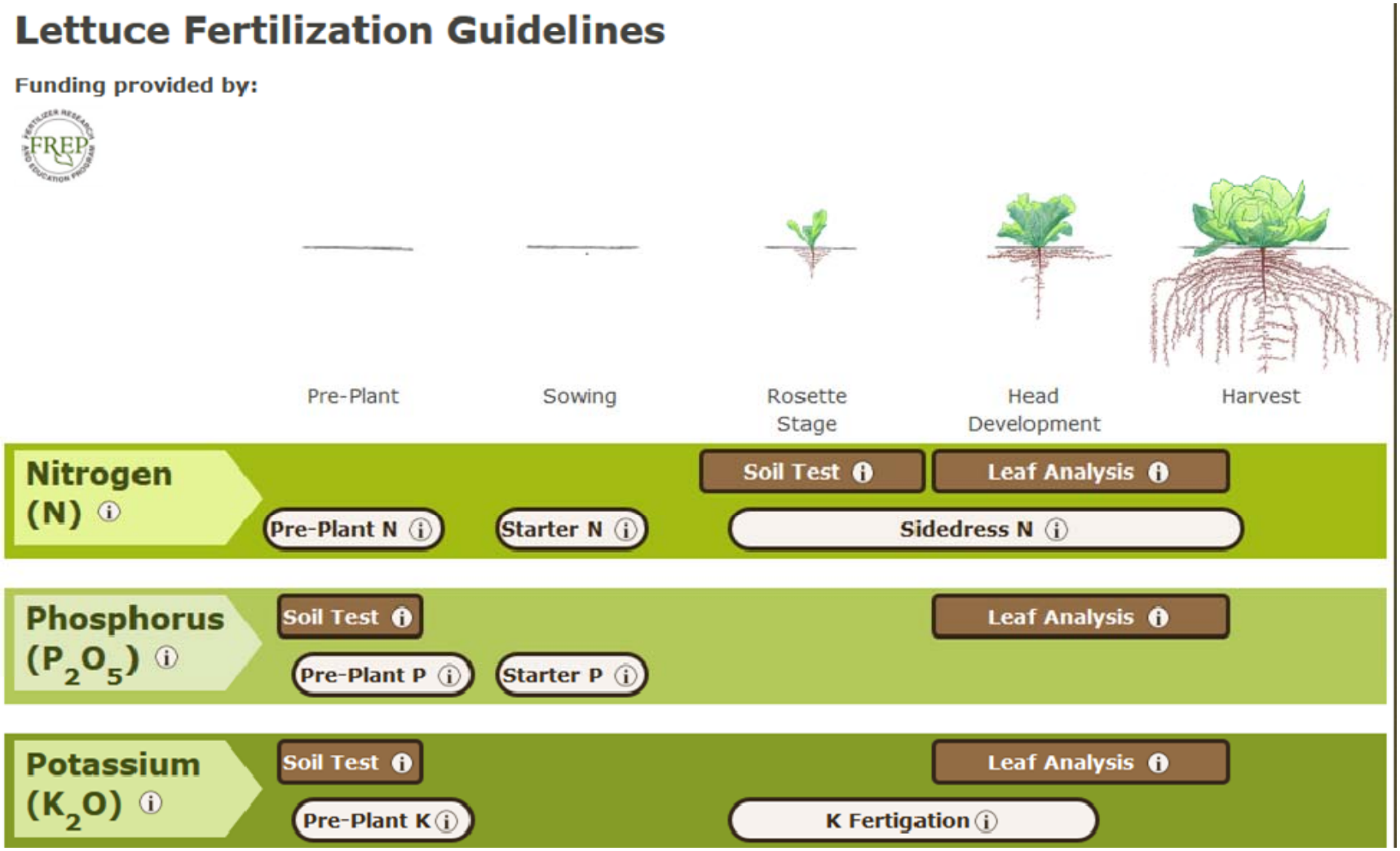
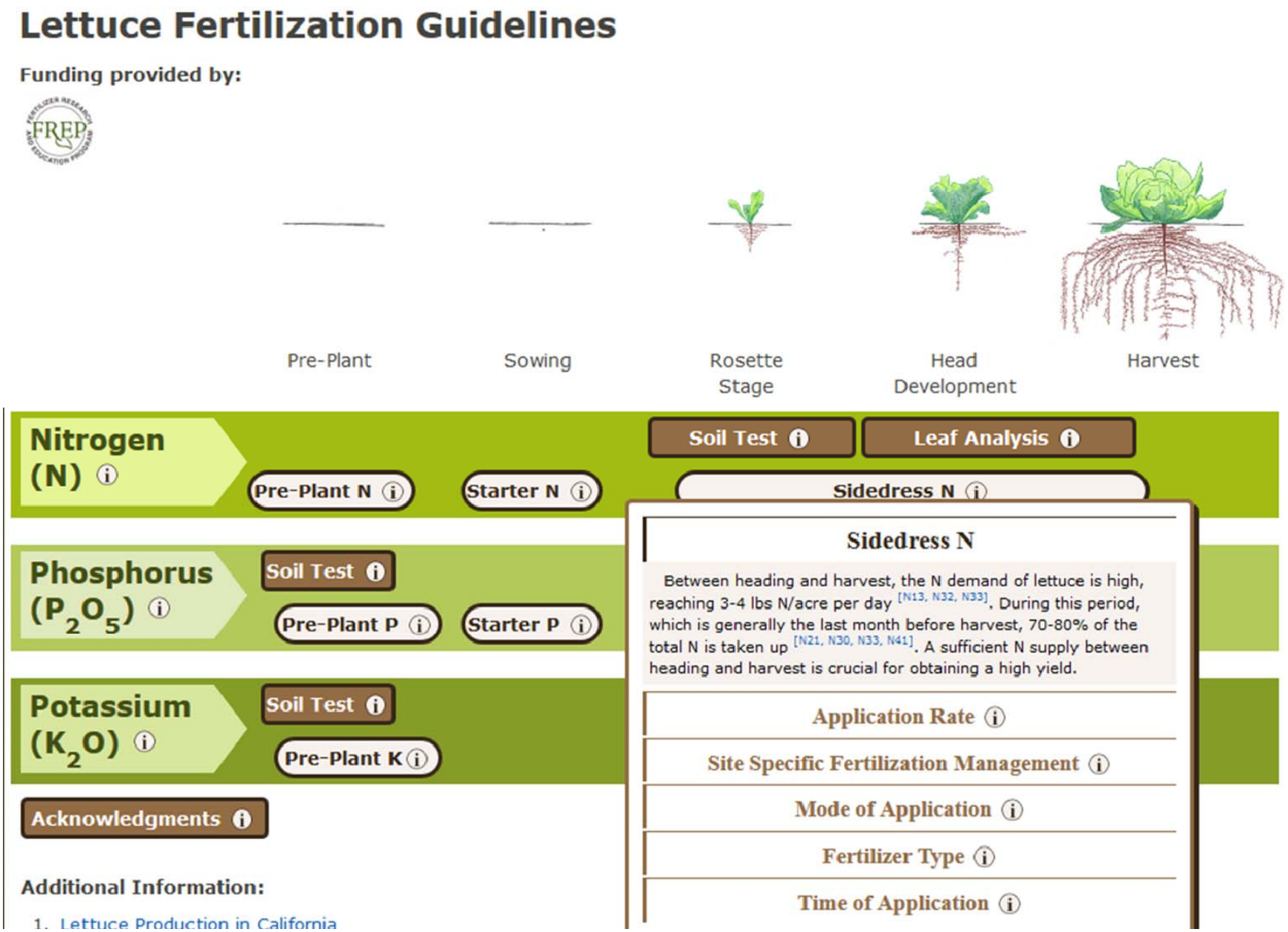
next

Fertilization Guidelines:
Some Screenshots



Fertilization Guidelines:
Some Screenshots



Fertilization Guidelines:
Some Screenshots

Lettuce Fertilization Guidelines

Funding provided by:

Nitrogen (N) ⓘ
Soil Test ⓘ | Leaf Analysis ⓘ
Pre-Plant N ⓘ | Starter N ⓘ

Phosphorus (P_2O_5) ⓘ
Soil Test ⓘ
Pre-Plant P ⓘ | Starter P ⓘ

Potassium (K_2O) ⓘ
Soil Test ⓘ
Pre-Plant K ⓘ

Acknowledgments ⓘ

Additional Information:

Links:

Soil Nitrate Test

Samples are taken from the top foot of the soil profile, which is the major rooting zone [N20, N21]. Zones of recently banded fertilizer applications should be avoided so that the N availability is not over-estimated [N11]. For more information on sampling procedure see Sampling for Soil Nitrate Determination).

Young lettuce plants require little N, as approximately 70% of the total N is taken up between heading and harvest [N21, N30, N33, N41]. Therefore, taking a soil sample after thinning, prior to the first in-season N application, and a second 2-3 weeks later provides sufficient information to schedule N applications throughout the season [N13].

Soil Nitrate Quick Test ⓘ

Interpretation of Test Results ⓘ

Fertilization Guidelines: Summary

The guidelines …

- … are a summary of research results
- … include general information for crops grown in California
- … provide a basis for in-depth discussions with local farm advisors or fertilization experts about site-specific adjustments
- … can easily be expanded and updated
- … include a list of references

Conclusions

- Data from completed projects has been entered into database
- The database is accessible online:

www.cdfa.ca.gov/is/frep/

- Fertilization guidelines for major crops are added on a flow basis
- The guidelines are accessible online:

http://apps.cdfa.ca.gov/frep/docs/guidelines.html

Acknowledgements

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