CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

August 4, 2015

State Board of Food and Agriculture

Jenny Lester Moffitt, Deputy Secretary

PRESENTATION OUTLINE

1. What is the Healthy Soils Initiative?
2. Why is this initiative important?
3. What work has been done on this initiative to date?

GOVERNOR'S JANUARY BUDGET PROPOSAL

"Healthy Soils

As the leading agricultural state in the nation, it is important for California's soils to be sustainable and resilient to climate change. Increased carbon in soils is responsible for numerous benefits including increased water holding capacity, increased crop yields and decreased sediment erosion. In the upcoming year, the Administration will work on several new initiatives to increase carbon in soil and establish long term goals for carbon levels in all California's agricultural soils. CDFA will coordinate this initiative under its existing authority provided by the Environmental Farming Act."

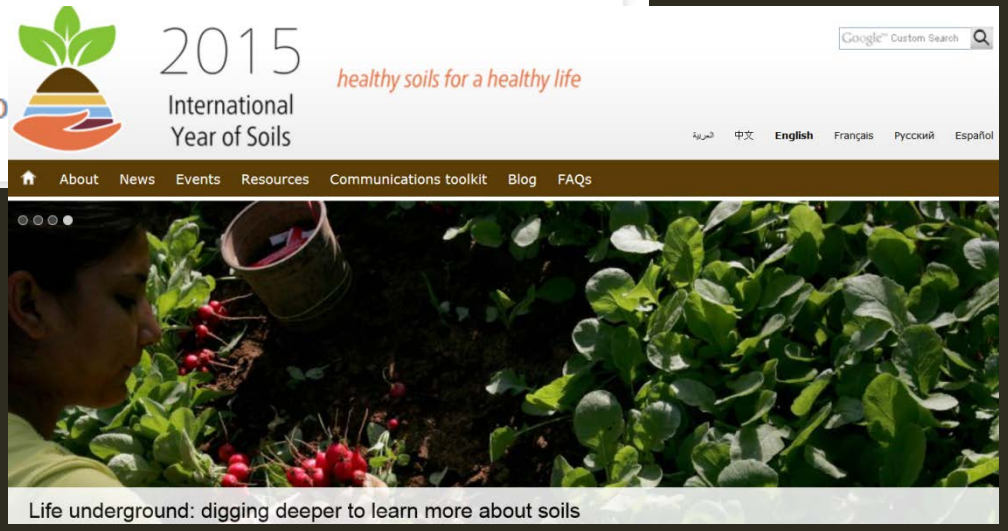
Healthy soil = adequate soil organic matter or humus

INTERNATIONAL YEAR OF THE SOIL

2015

After two years of intensive work, **2015** has been declared the International Year of Soils by the 68th UN General Assembly (A/RES /68/232). The IYS aims to be a platform for raising awareness of the importance of soils for food security and essential eco-system functions.

GSP: IYS 2015
www.fao.org/global**soil**partnership/.../en... Foo



http://www.fao.org/soils-2015/en/

INTERNATIONAL YEAR OF THE SOIL

http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/yos/

FOOD SECURITY

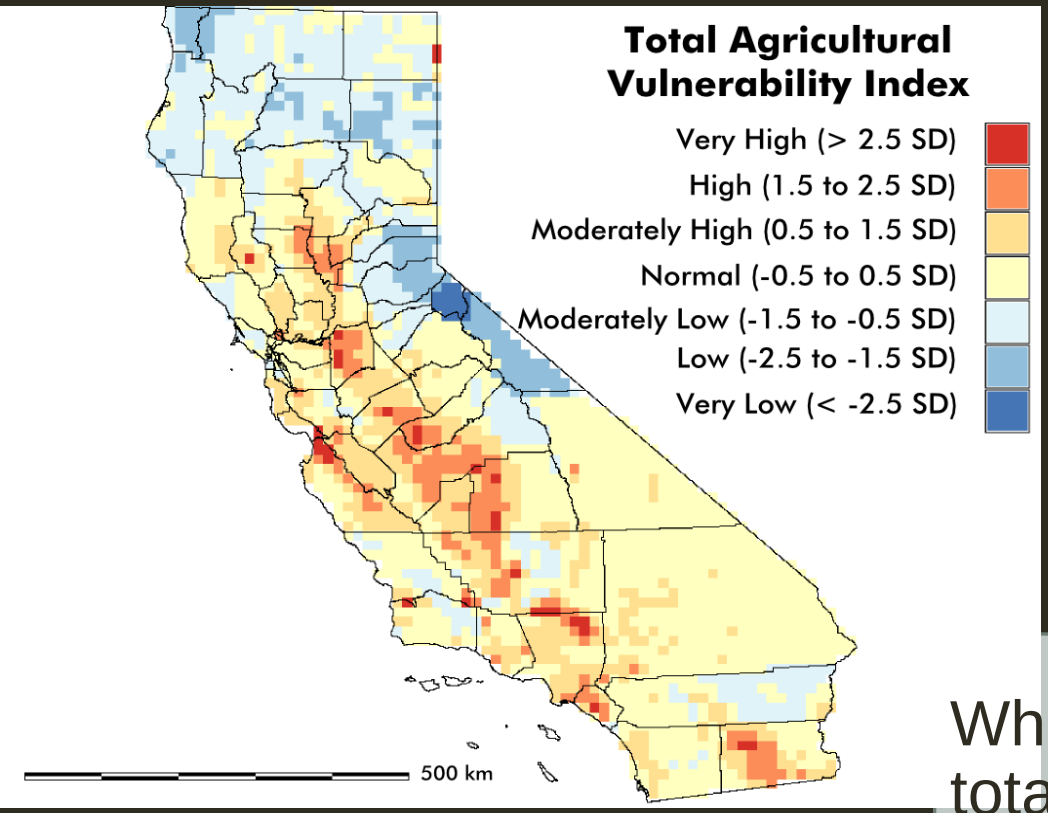
- California is the nation's top agricultural state and has been for more than 50 years.
- More than 400 commodities
- California remained the No. 1 state in cash farm receipts in 2013, with $46.4 billion in revenue from 77,900 farms and ranchers.
- The state accounted for 12 percent of national receipts.
- Over 1/3 (one third) of country's vegetables from California
- Over 2/3 (two thirds) of nation's fruits and nuts from California.
- Some of the most fertile and diverse agricultural soils.
- Some specialty crops only produced in California
- Leads the nation in the production of more than 80 crops

Crop and Livestock Commodities in which California Leads the Nation [1/]

Almonds	**Figs**	Melons, Cantaloupe	Pluots
Apricots	Flowers, Bulbs	Melons, Honeydew	**Pomegranates**
Artichokes	Flowers, Cut	Milk	Raspberries
Asparagus	Flowers, Potted Plants	Nectarines	**Rice, Sweet**
Avocados	Garlic	Nursery, Bedding Plants	Safflower
Beans, Dry Lima	**Grapes, Raisins**	Nursery Crops	Seed, Alfalfa
Beans, F.M. Snap	Grapes, Table	**Olives**	Seed, Bermuda Grass
Bedding/Garden Plants	Grapes, Wine	Onions, Dry	**Seed, Ladino Clover**
Broccoli	Greens, Mustard	Onions, Green	Seed, Vegetable and Flower
Brussels Sprouts	Hay, Alfalfa	Parsley	Spinach
Cabbage, Chinese	Herbs	**Peaches, Clingstone**	Squash
Carrots	Jojoba	Peaches, Freestone	Strawberries
Cauliflower	Kale	Pears, Bartlett	Tomatoes, F.M.
Celery	**Kiwifruit**	Peppers, Chile	Tomatoes, Processing
Chicory	Kumquats	Peppers, Bell	Triticale
Corn, Sweet	Lemons	Persimmons	Vegetables, Greenhouse
Cotton, American Pima	Lettuce, Head	Pigeons and Squabs	Vegetables, Oriental
Daikon	Lettuce, Leaf	**Pistachios**	**Walnuts**
Dates	Lettuce, Romaine	Plums	Watercress
Eggplant	Limes	**Plums, Dried**	Wild Rice
Escarole/Endive	Mandarins & Mandarin Hybrids		

1/ California is the sole producer (99 percent or more) of the commodities in **bold**.

CLIMATE CHANGE RESILIENCE



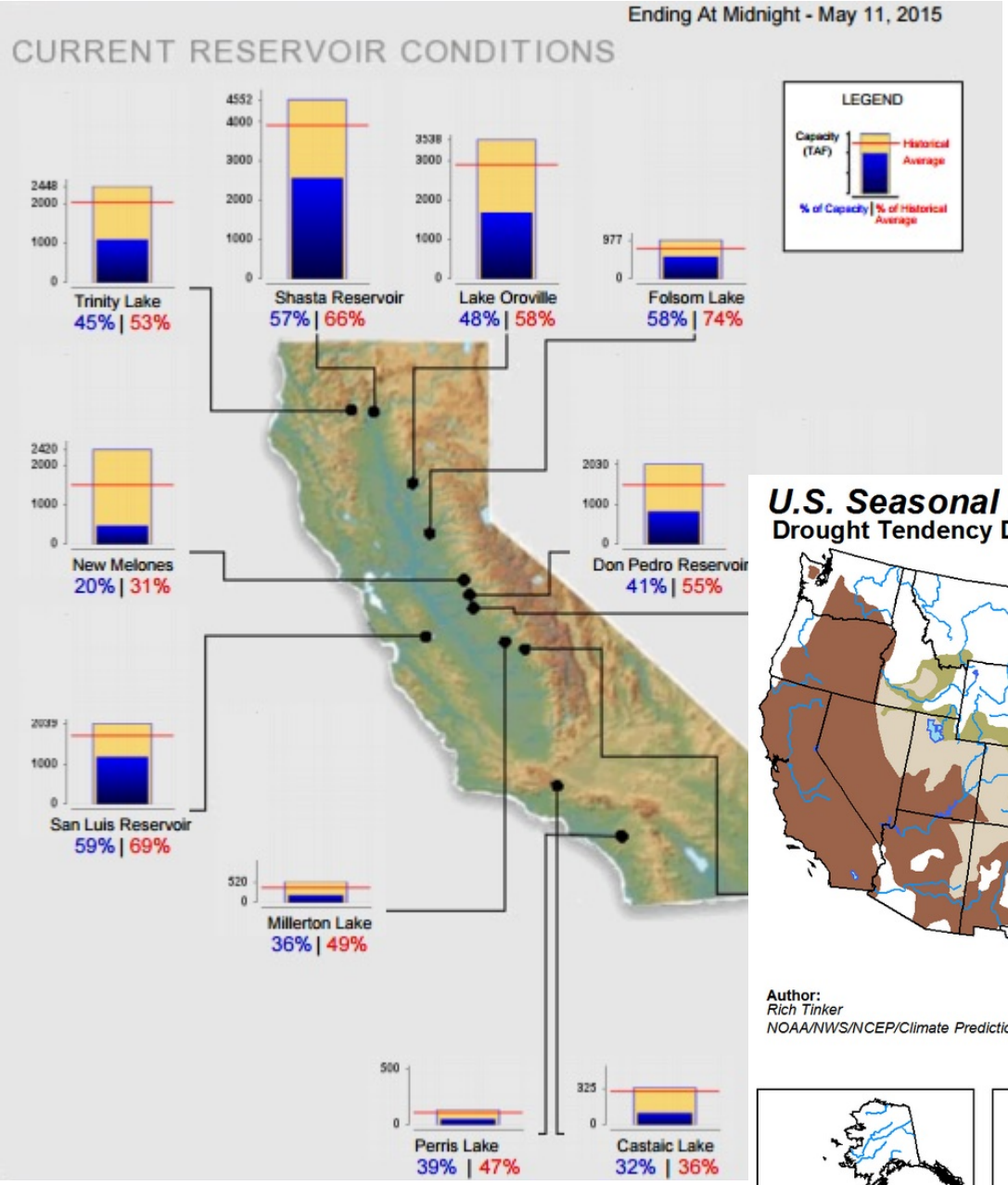
Vulnerability Index uses 4 sub indices:

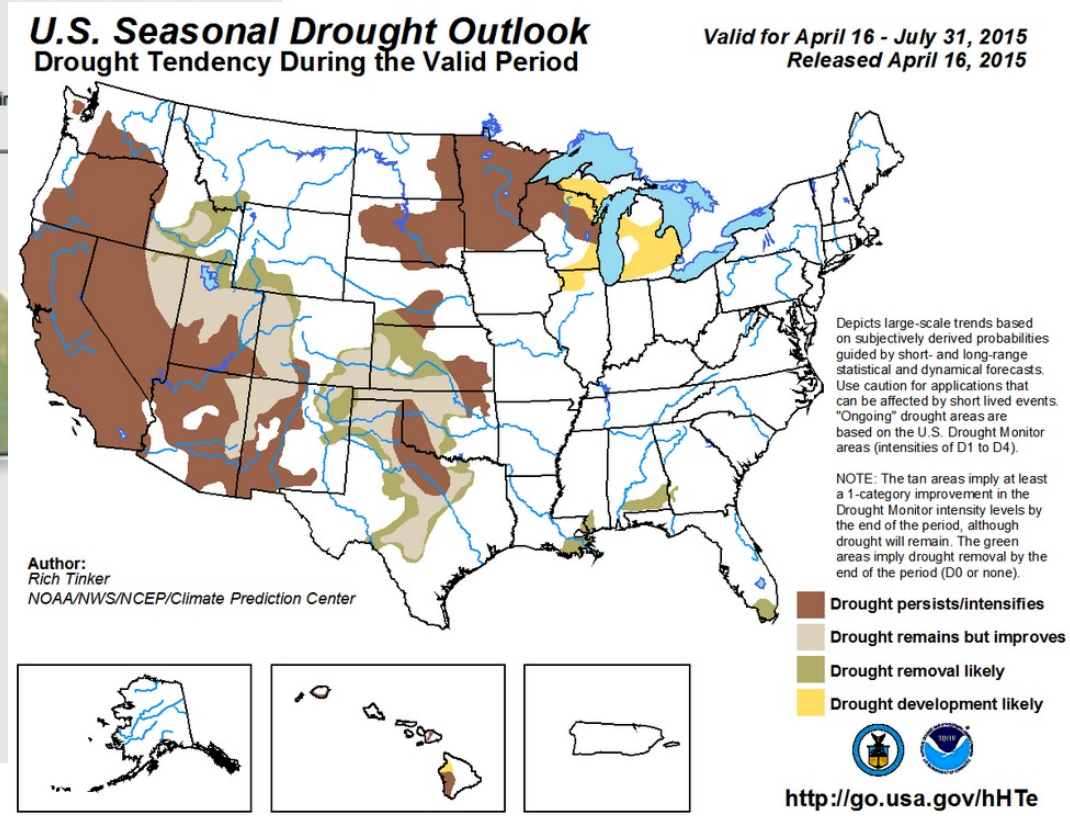
1. Climate
2. Crop
3. Land use
4. Socioeconomic

When indices are combined, total agricultural vulnerability in some areas of the state is very high

Study by Jackson et al. UC Davis with funding from CEC

Fourth year of a historic drought in California





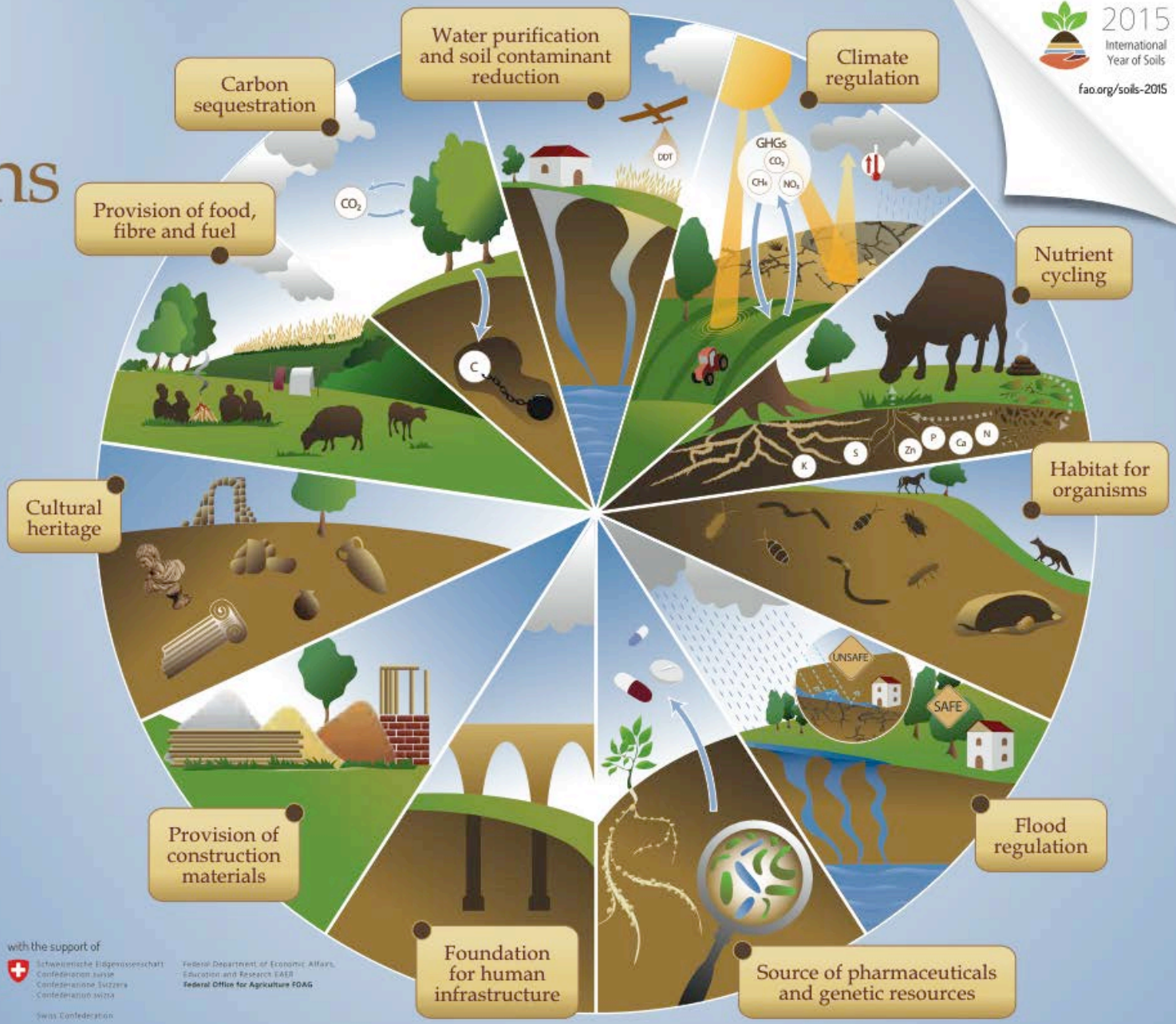
BENEFITS OF HEALTHY SOILS

Healthy soils are soils that have adequate soil organic matter (SOM) to support multiple benefits including, but not limited to:

- Improve plant health and yields – SOM contains important nutrients
- Sequester and reduce greenhouse gases – stabilized carbon stored in soil serves as a "carbon sink"
- Improve water and air quality – SOM affects the persistence and biodegradability of pesticides and other soil inputs.
- Increase water retention – SOM has the ability to hold up to 20 times its weight in water
- Reduce sediment erosion and dust – healthy soils have improved aeration, water infiltration and resistance to erosion and dust control
- Improve biological diversity and wildlife habitat – at least a quarter of the world's biodiversity lives in the soil

Soil functions

Soils deliver ecosystem services that enable life on Earth



2015 International Year of Soils

fao.org/soils-2015

Food and Agriculture Organization of the United Nations

with the support of

Schweizerische Eidgenossenschaft
Confédération Suisse
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Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs, Education and Research EAER
Federal Office for Agriculture FOAG

MISSION

An Interagency Plan to Reduce Greenhouse Gases and Improve Drought Resiliency by Innovating Farm and Ranchland Practices

California's Healthy Soils Initiative is a collaboration of state agencies and departments to integrate individual activities that contribute to the goal of healthy soils into a comprehensive set of actions. A combination of innovative farm and land management practices contribute to building adequate soil organic matter, including but not limited to the use of compost and soil amendments; reduced tillage; range management rotations; and, utilization of cover crops that can increase carbon sequestration and reduce overall greenhouse gases. The Governor has directed CDFA to lead the coordinated effort.

cdfa CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

CALIFORNIA CONSERVATION

AIR RESOURCES BOARD

dpr

CalRecycle

Water Boards

ACTIVITIES TO DATE

Source: UN FAO

- Cross-Agency Technical Working Group
  - ☑ Actions document
  - ☐ Work plan and timeline
- Environmental Farming Act, Science Panel public workshops
  - ☑ May – preliminary workshop and to take public comment on the Healthy Soils Initiative
  - ☑ July – Co-hosted compost workshop with CalRecycle
  - ☐ Additional meetings
- May budget - $20 million to CDFA for Healthy Soils out of Greenhouse Gas Reduction Funds, however not yet approved by legislature

➢ **Funding will be key for initiative implementation!**

LONG-TERM GOALS

- Protect and restore soil organic matter (soil carbon) in soils to ensure climate change mitigation and food and economic security
- Identify sustainable and integrated financing opportunities, including market development, to facilitate increased soil organic matter
- Provide for research, education and technical support to facilitate healthy soils
- Increase governmental efficiencies to enhance soil health on public and private lands
- Ensure interagency coordination and collaboration

Source: UN FAO

SHORT-TERM ACTIONS

- Working with stakeholders, establish short- and long-term goals for building soil organic matter in California's agricultural and degraded soils Identify critical agronomic and economic research needs.
- Build mapping tools for increasing soil organic matter throughout the state.
- Contract with partners to identify demonstration projects to implement research objectives that meet soil carbon goals.
- Encourage organic diversions from landfills to more beneficial uses.
- Facilitate discussion on the benefits of compost use when managing nitrogen and include as a separate component in the nitrogen management plans required by the Irrigated Lands Regulatory Program
- Grow CDFA's State Water Efficiency and Enhancement Program (SWEEP) to integrate soil management practices into the SWEEP to improve water retention.
- Integrate incentives for improved soil management practices into the Sustainable Agricultural Lands Conservation Program.

WEBSITE AND BLOG POST

CDFA Home > Environmental Stewardship > Healthy Soil Initiative

HEALTHY SOIL INITIATIVE

Join the Healthy Soils Discussion on May 14th at CDFA
Next Environmental Farming Act Science Advisory Panel to discuss healthy soils
Agenda

To receive e-mail news updates on the Healthy Soils Initiative: subscribe here.

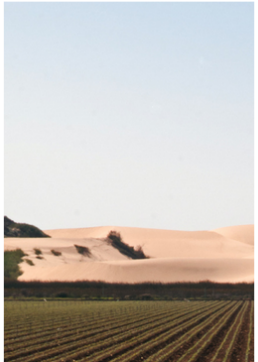
California is the nation's leading agricultural production state in terms of both value and crop diversity (http://www.cdfa.ca.gov/Statistics/). Soils are fundamental medium for crop growth and food production (http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/soils/health/). The importance of soils has been memorialized by the United Nations Food and Agriculture Organization after they recognized 2015 as the Year of the Soil (http://www.fao.org/soils-2015/en/). The term "healthy soils" refers to ensuring that our agricultural soils have adequate soil organic matter (SOM) or soil carbon content. Increasing the amount of SOM, from its current levels, in soils can provide multiple benefits. These benefits include (among others):

← USDA announces $30 Million for food entrepreneurs and agricultural producers to develop new products

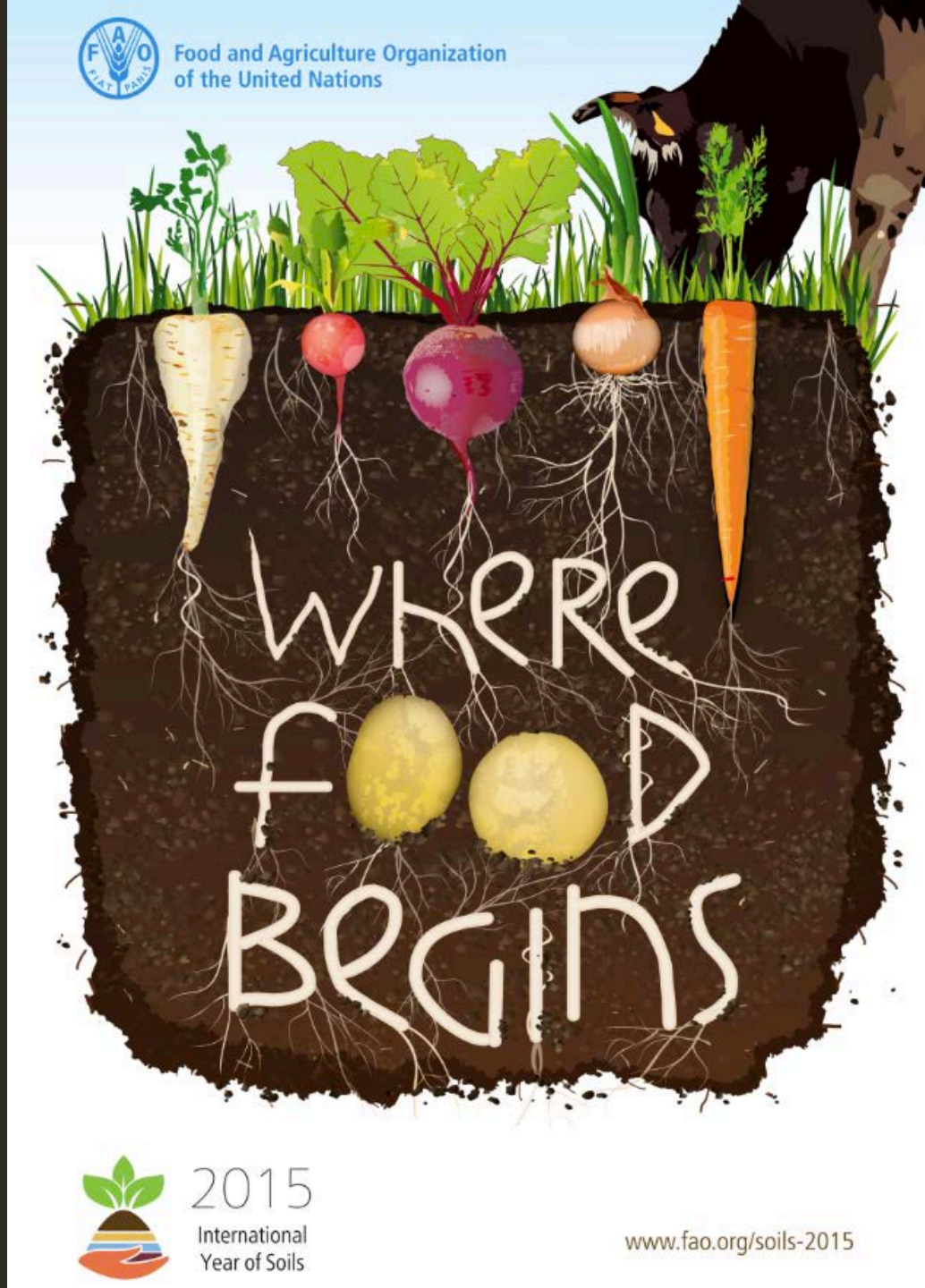
Healthy Soils Initiative: A foundation for agricultural sustainability and climate change resilience

Posted on May 13, 2015 by Office of Public Affairs

Ask a shopper where their food comes from, and the answer might be "the supermarket" or "the farmers' market," or maybe even "a farm" or "a farmer." Those are all true, but of course they aren't the whole story. Ask a *farmer* the same question, and you're likely to hear "the soil." Ah, now we're getting somewhere…



In his recent budget proposal, Governor Brown included a Healthy Soils Initiative, saying: "Increased carbon in soils is responsible for numerous benefits including increased water-holding capacity, increased crop yields and decreased sediment erosion. In the upcoming year, the Administration will work on several new initiatives to increase carbon in soil and establish long term goals for carbon levels in all of California's agricultural soils. CDFA will coordinate this initiative under its existing authority provided by the Environmental Farming Act."

SHORT VIDEO…

http://youtu.be/8_69vy7ZBxE