

The Next Fifty Years of Federal Farm Policy (a draft document for discussion)

To protect America's soils, waters and people, federal farm policy must change at its roots. A fundamental change is needed to revive rural communities eviscerated by farm policy of the past decades. These changes will marry the best American farming traditions with new knowledge of ecology and promising results of research well underway. They will lead to the restoration of former prairie landscapes, forests and fisheries, and bring enduring health and productivity to agriculture. These changes need not require an increase in federal spending. While the change is visionary, it is founded on what is already known to be possible.

This new farm policy will consist of four essential elements:

- ‡ A clear sense of direction and commitment over five decades, not just five years. Each five-year farm bill, along with its legislation, should be judged primarily by how well it encourages change over that longer term. Opportunities for quick results will be encouraged if the larger goal is not compromised.
- ‡ Recognition that a healthy farm economy cannot endure on deteriorating land. Soils and water quality must be restored, their preservation made paramount. And energy must be conserved or come from renewable resources. Agriculture's gauge of progress must include shaking its dependence on what won't last.
- ‡ Fostering of resilience to climate change. This means guarding soil against catastrophic storms and drought, and allowing farmers flexibility in grain crop and forage choices.
- ‡ Recognition that well educated, healthy and reasonably prosperous rural people and communities are essential to restoring and keeping healthy rural economies and landscapes.

Federal farm policy since World War II has done more to undermine than to protect the nation's land and people. It has assumed continued cheap energy and materials, indeed it has encouraged growing dependency on and lavish use of them. The resulting food is cheap at the store and feedlot but costly to rural communities, landscapes, soils and water. Federal conservation programs have been overwhelmed by results of other policies designed to promote production and exports. We suffer high environmental and social costs and major economic vulnerability in international trade as a consequence. Many analysts, including members of Congress, know that farm policy has been based on a fatal combination of service to well-financed and narrow special interests, and haphazard, hastily fashioned responses to short-term crises. The need for a consistent policy to counter all of these dangers is urgent.

Such a policy must be careful to take regional differences into account. Each area has different problems that call for solutions specific to the context of the place. This draft is about two regions only, the Midwest and California, discussing those regions' specific problems and potential solutions. **Our aim is to add similar sections to address the other areas of the country.**

The Midwest Problem

Lost soil and water quality

Although there are many techniques and programs to prevent soil erosion, it persists, and in some ways is worse than before. After some improvement, nutrient loss from our best Midwestern soils is steadily increasing. (Figure from Turner and map from new Heinz Center study showing U.S. nitrate loading, will include later.) This impoverishment makes soils more dependent on fertilizer made with increasingly scarce and costly resources, including fossil energy. For all its benefits, synthetic fertilizer makes it ever more difficult to keep soils healthy and productive.

The problem does not stop at field's edge. Natural and added nutrients leach from soil to make Midwestern freshwater some of the world's most polluted. Carried down the Mississippi, these nutrients make what is one of the most serious and seemingly intractable environmental problems in the United States, a New Jersey-size hypoxic "dead" zone in the Gulf of Mexico. Fully 35 percent of the nitrogen flushing into the gulf comes from streams of Iowa and Illinois alone. (Jackson 2008) (Will insert map and figure later.)

Erosion of soil by wind and water has long concerned policy-makers. The Natural Resource Conservation Service provides expert advice, programs and financing to control erosion. The Conservation Reserve Program helps. But these efforts, financed at considerable taxpayer expense, do little against the tide of exploitation the five year farm bills de facto encourage.

Lost crop diversity, farms and culture

Decades of bills have linked crop payments directly to a handful of commodities, giving farmers few choices of what to grow. Commodity buyers built transportation, storage, and mills, often with huge subsidies, to serve this narrow field. Facilities for the former diversity of crops and livestock were, of course, abandoned. This combination of circumstances prompted a large scale shift to the few crops with the highest profit margins. Machinery and farm chemical corporations adapted to the narrowing world, and banks loaned preferentially to farmers who did the same.

The American farm landscape is now dominated by an annual monopoly. The diverse rotation once practiced by farmers for plant and soil health has steeply declined, especially in states with rich, deep soil and high capitalization, such as Iowa. The Agricultural Census of 2002 showed that 88 percent of Iowa's 59,000 square miles is in farms, and 72 percent of that farmland is in corn and soybeans. (U.S.-NAAS 2006 in L. Jackson 2008) In the northern two-thirds of the state almost 95 percent of the land is in farms, and 98 percent of that is in corn and soybeans. "From the city of Dubuque on the eastern edge of Iowa, it is possible to cross the entire state ... and see only corn and soybeans—virtually no pasture, wetlands, prairie or forest beyond the slender ribbon on either side of the rivers." (L. Jackson 2008) Nebraska, Illinois and Indiana offer the same mind- and land-numbing treatment. (Jackson 2008) See attached pie chart, "Distribution of Global Agricultural Acres" by FAO Bureau of Statistics.

Simplification of the crop landscape goes hand-in-hand with the falling number of farmers and farmsteads, and with the gutting of rural communities. Concentration on a few row crops means plunging demand for a whole array of rural goods and services. Grocers, clinics and schools have closed. Tens of thousands of young people who want to farm are denied the chance due to costly machinery, chemicals and land. Consequently each decade fewer children grow up on farms, and the average age of farmers has risen steadily. It is unclear who will have the knowledge and means to grow the nation's food a few years down the road.

Policy raises floodwaters, reduces food supply

The simple corn-soybean landscape also required better soil drainage, which brought costly complications. Federal dollars subsidized tiling—usually not tiles now, but perforated plastic pipes—beneath the surface to move water out of fields more quickly and prevent water-logging. More federal money went to straighten waterways and keep up the flow that had been slowed by natural bends. More yet financed confining larger streams and rivers to relatively narrow channels with levees on either side. All of these heavily subsidized efforts to make the landscape friendlier to the now-dominant agriculture set up the catastrophic floods of 1993 and 2008. The federal government then picked up much of the tab for the damage it had unintentionally spawned.

Subsidies and trade protection for ethanol and other biofuels from annual row crops aggravate the problem. U.S. corn and soy biofuels cannot compete with ethanol from sugar cane and other tropical crops—not economically, or for energy returned for energy invested. Subsidizing annual row crops for biofuel production is inefficient, and comes at enormous cost to our nation’s soils, waters, fisheries and federal treasury. It establishes an expensive infrastructure based on a bubble of speculation that will almost certainly burst when its inefficiencies can no longer be ignored, and when other nations quite justifiably challenge the subsidies and trade protection under World Trade Organization rules. (Brazil has already successfully challenged the United States on similar issues regarding cotton.) Then farmers, communities and farm businesses will suffer severe hardships, and government again will pay to mop up its wreckage. Federal support for biofuels based on grains and soy also increases the price of food at home and abroad. It is not a solution to the nation’s energy or climate change problems, and there is reason to believe it actually contributes to both problems.

A pattern hard to break

If there is one ecological reality which sums up the problem best it is that this vastly simplified landscape featuring two annual crops, corn and soy beans, grossly wastes nutrients, especially in the non-growing season. This is so even when little synthetic fertilizer is used. The best agricultural practices can’t control losses in simple systems like corn and soy rotation. They are inherently leaky. And researchers have discovered that it takes decades to fix leaky soils. (Turner)

The healthfulness of natural diversity

Time-honored techniques can help, but they are not good enough alone. Thankfully, recent innovative methods can reduce damage and begin to restore soils, woodlands and biodiversity, leading to a more stable and enduring basis for rural economies and communities.

The classic farm of the Midwestern Corn Belt before World War II grew corn and soybeans, but instead of occupying 90 to 100 percent of the land, these two crops grew on about half of it. “The other half of the farmland consisted of a diverse array of small grains, hay, pasture, and ...wild hay or prairie. The farms were smaller and more numerous: 203,159 farms in 1950 with less than 0.1 percent greater than 1,000 acres, vs. 90,972 in 1997 with 60 percent greater than 1,000 acres. Prior to the late 1950s virtually all farms were diversified: That is, they raised crops and fed them to at least one species of livestock (and often three or more).” (Jackson, 2008) The scene included more woodlands, wetlands and meandering streams. This more diverse farmland

was not always farmed skillfully, but it depended less on fossil fuels and farm chemicals, because more acreage was in perennial forage and it tended to retain water and nutrients rather than rapidly draining them into streams. It supported a larger and more economically diverse rural population.

Livestock were raised on grain and pasture on dispersed farmsteads. Now they obtain most of their weight gain from grain in large confinement facilities. Many experts, including authors of EPA studies, consider these feedlots to be the most severe and difficult water pollution problem in the United States. (And such studies seem not to include the nitrate leaching from cropland.) The problem is a direct result of the abandonment of the character and organization of the older farm landscape.

We can't reconstruct the farm economy and landscape of 1950, which was far from perfect. But we can know from it that land farmed with a variety of perennial grasses and hay, with more wetlands and woodlands and more complex crop rotation, keeps and uses nutrients and water much better. Recent experiments confirm this. As an added bonus these landscapes are also far friendlier to diverse wild plants and animals. Without these more complex farmscapes it will be difficult if not impossible to enhance biodiversity for healthy ecosystems, or to meet the goals of the Endangered Species Act.

Innovations

We have better ecological understanding than a half-century ago, and some farmers are improving on the old complexity. They have new rotation schemes and soil treatments, are more efficient with energy and water, use less fertilizer and pesticides. They keep or better production and reduce "externalized" costs borne by the land and wildlife. Many of them work against the grain of federal farm programs and federally sponsored research and extension services. But there is some collaboration. (Imhoff, etc.)

One of the most promising research efforts is for high-yielding cereal grain, legume and oil seed crops that would be perennials rather than annuals. In the last decade plant breeders have had encouraging results in both perennializing classic crops such as wheat and sorghum and in increasing yield in wild perennials such as intermediate wheatgrass. These crops might be planted as perennial polycultures that come close to how prairies work: sustainably, without annual cultivation. A central tenet of our vision includes mixed perennials with long, complex roots which not only hold soil and moisture much better than annual row crops, but support a robust array of organisms that build soil fertility rather than exhaust it. Water and nutrient leaching into runoff aren't problems. Bred to produce high grain yields, their proponents believe they are capable of solving humanity's oldest environmental problem. We would be able to enjoy bountiful harvests from the land while enhancing its diversity and health.

Present farm programs help restore riparian woodlands and wetlands, and set levees further from streams. The Conservation Reserve Program pays farmers to put erosion-prone land in perennial cover. These are all good steps. They need more generous funding and more aggressive agency commitment. But still largely unaddressed is the overriding problem of how policy has encouraged maximum production of a few commodities, especially corn and soy beans, and that is what we expect this vision for a fifty year time horizon can correct.

The California Problem

While the Midwestern grain economy has dominated the policy laid out in successive federal Farm Bills, other regions of the country have different problems, many of them also affected strongly by federal policy. For example, measured in dollar value, California far outranks any other state in farm production. California's agriculture is extraordinarily diverse, including fruits, nuts, vegetables, table and wine grapes, rice, cotton, poultry, beef, pork, nursery products and dozens of other crops. It is the number one state in dairy production, intimately linked with the economy of grain production in the Midwest. Until the new programs for specialty crops were added to the Farm Bill in 2008, California was relatively unaffected by the more fiercely contested programs in the Farm Bill because of its relatively small role in the commodity support programs designed for grains and cotton. (California produces these crops but not in great quantity compared to the Midwest and South.) However, this way of analyzing federal farm policy ignores the fact that federal policy outside of that set by the Farm Bill per se has and always has had an extraordinary influence on California agriculture.

California agriculture is strongly dependent on federally-financed and subsidized irrigation and flood control projects built and managed by federal agencies. These water projects are involved in a complex web of continually renegotiated relationships with agencies of the state, municipalities, and special districts established to manage irrigation, drainage, floods, levees, and groundwater. Federal agencies dealing with migratory waterfowl and marine fisheries are intimately and strongly linked to the complicated management problems of California water. The state's water situation is almost universally regarded as in a crisis condition, with every expectation that the crisis will deepen dramatically with further population and economic growth and with the effects of climate change on water supply and on sea water rise. (Most of California's surface water for irrigation and municipal use is taken from the California Delta, an estuary which will be affected by rising sea levels in ways that are of enormous significance for the Delta's farmland and for irrigation and for municipal water supplies going to a large part of the state. Municipalities will be dealing with increasingly saline water, as will farmers, in a state where increasing soil salinity is already a significant problem.)

While most states of the Corn Belt have negligible amounts of federally owned and managed public lands, California's federal lands make up more than a third of the state's land surface. Public lands as a whole compose half. Management of these lands not only affects ranching and forest operations, but also the irrigation water yield from major watersheds and a variety of other significant matters that affect agriculture. As the recent conflicts in the California Delta and the conflicts arising from federal decisions in the Klamath Basin that affect ocean fishing demonstrate all too clearly, federal agencies often fail to coordinate effectively with each other and with other public agencies and private interests. California is home to several land-grant and other research universities that receive a large share of federal research money, and federal programs and decisions affect California's large agricultural biotechnology industry. Federally supported market and export development programs are particularly important for sale of the many California crops that are unusually dependent on the export economy. The NRCS and other federal agencies and extension services influence California agriculture as they do the rest of the nation. Further, because of both competitive and cooperative linkages of California agriculture with other major regions, most notably the Midwest, farm policy in other states can strongly influence events in California. Taken as a whole all of these federal interventions in the agriculture of California tend to make federal policy even more important to California

agriculture than to many other states, even though California has participated in a relatively minor way in the commodity support programs that are taken to be the heart of the five-year Farm bill.

California agriculture is very strongly dependent on migrant labor from other nations, primarily Mexico. One of the central policy dilemmas of California agriculture is that it depends on a labor supply that is little affected by any decisions under the control of the state but that is strongly affected by federal immigration policy and implementation. Federal immigration policy, in turn, is affected by large political forces that have only a little to do with either labor availability in the farm economy or the welfare of farm workers.

California's situation (as in the West more generally) emphasizes the fact that the Farm Bill cannot be understood as anything more than one element of federal farm policy, and that farm policy as whole is in many respects controlled by larger policies, such as trade and immigration policy that are seldom conceived of or managed primarily in terms of their effect on agriculture.

The complexity of California's situation, and that of other regions, needs to be addressed in ways that are complementary to the approach developed here for the Midwest, but must be fashioned separately.

What farm bills should do

The last two farm bills addressed some of the problems raised here. But the attempts were partial, narrowly focused and modest. The problems are broad and dire. We propose that farm bills over the next fifty years work toward a comprehensive and sustainable solution for these problems by incorporating the following approaches:

A. Restoration of the healthy farm landscape.

1. Support incorporation of more perennial crops, hays and grasses.
2. Support more complex rotations, that include perennials.
3. Encourage greater crop diversity.
 - a. Continue work begun in the 1990s that separates farm payments from the production of a few commodities, limiting farm payments to single operations. Use market development programs for more farm products. This should include support for direct marketing in nearby communities, as new legislation recognizes, but should also look toward innovation in what inevitably is a farm economy based partially on exports out of the region and nation.
 - b. Support more on-farm, value-added processing of an array of products.
 - c. Use transitional payments to build an infrastructure for a more diverse crop mix. Machinery and facilities that don't work effectively in a more diverse production environment will need to be replaced. Tax credits can be used to offset losses and replacement costs.
 - d. Eliminate subsidies and trade protection that support ethanol and other biofuels made from annual row crops.
4. Encourage a more complex agricultural landscape.
 - a. pay farmers for "ecosystem" services in the public interest, such as wetland, woodland and grasslands restoration for flood control and good water.

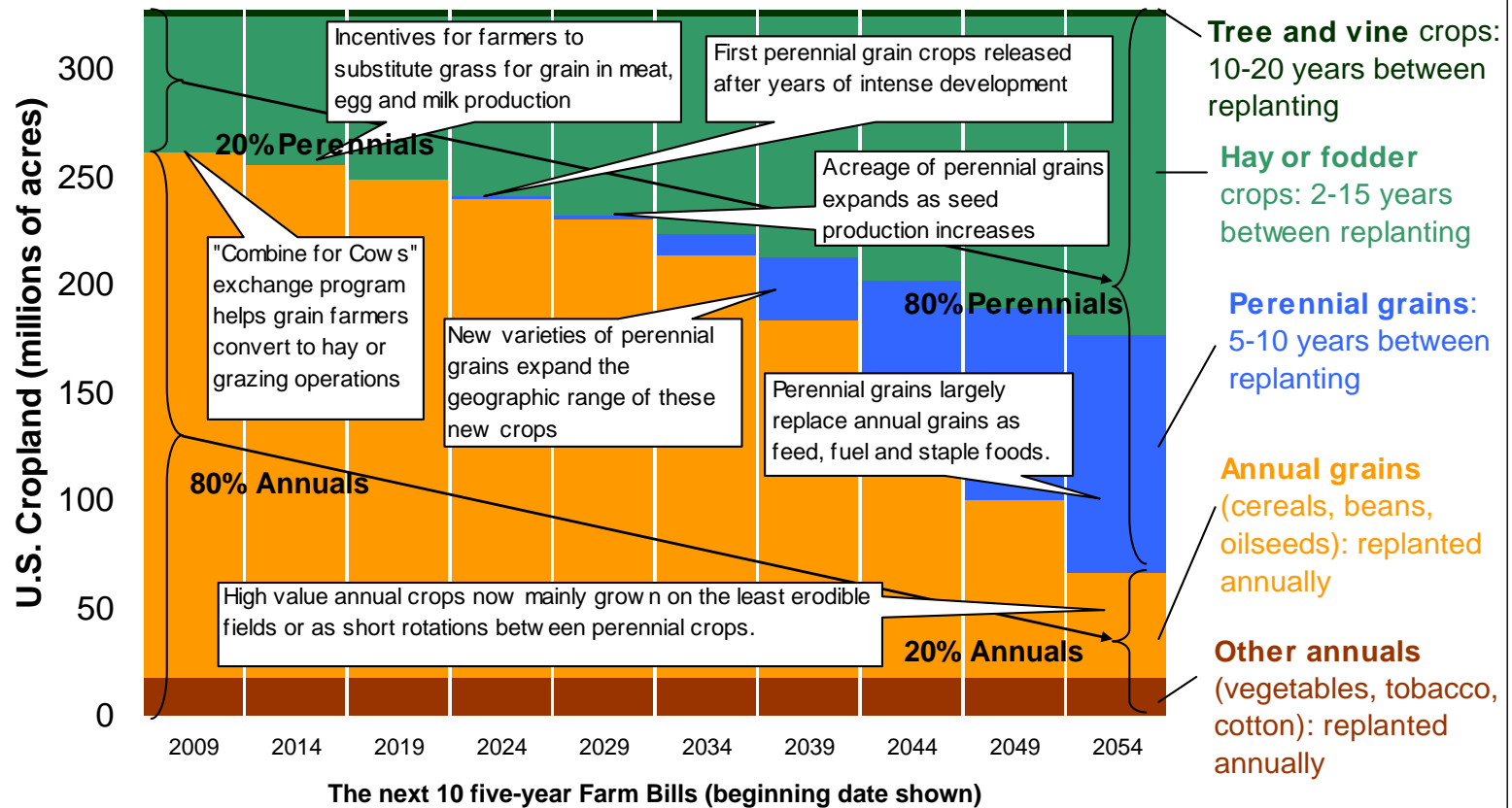
- b. work with municipalities and special districts to create flood control measures involving coordination of agricultural land use.
 - c. encourage small-scale, on farm livestock operations coordinated with decentralized animal processing facilities.
 - 5. Support incorporation of more perennial crops, hays and grasses.
 - 6. Support more complex rotations, that include perennials.
- B. Innovation for ecological and economic health and security.
 - 1. Increase support for on-farm energy conservation.
 - 2. Increase support for on-farm energy production
 - a. based on perennial polycultures grown on land not suitable for row crops and annuals.
 - b. based on wind, solar, methane production and other sustainable technologies.
 - 3. Support development of perennial polycultures grain crops.
 - 4. Support programs in schools and extension offices toward the education and research required to carry out the program above, including the gradual restoration of rural communities based on a more diverse rural landscape and economy.

Envisioning the next half-century of U.S. Agricultural Policy in 20/20

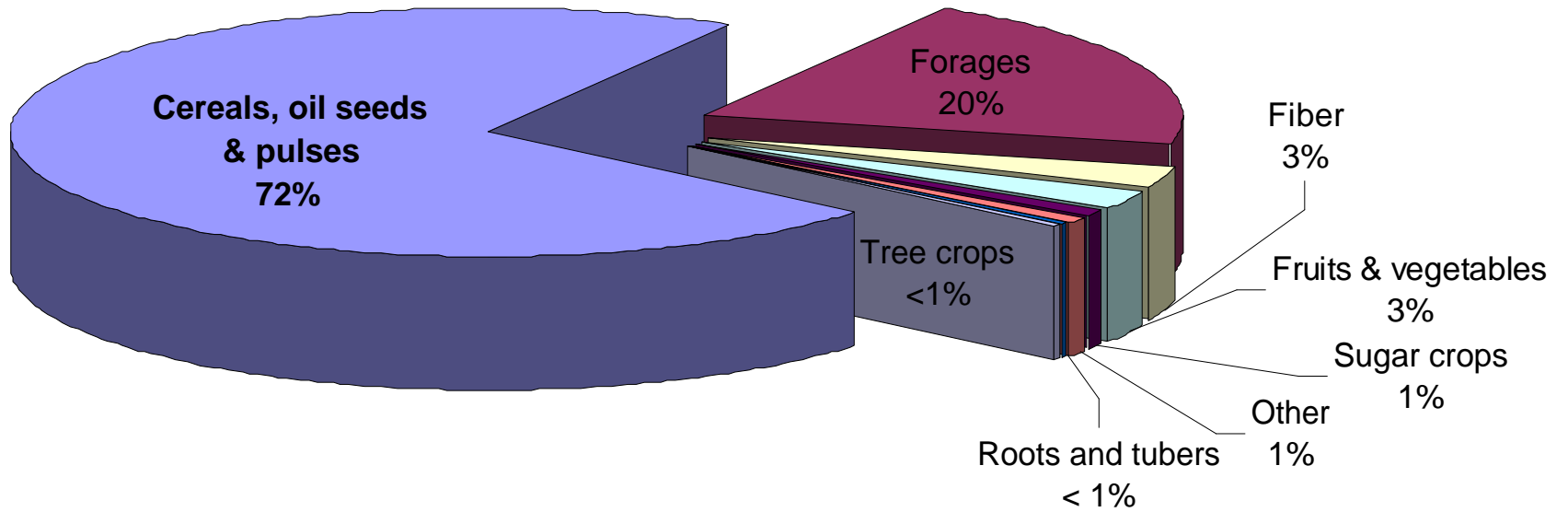
20: The percentage of today's cropland currently protected by a long-lived, deep-rooted perennial crop.

20: The percentage of our 320 million acres of cropland in fifty years not protected by perennials

Unlike rangeland or forests, the individual fields that comprise our nation's 320 million acres of cropland are frequently being rotated between different crops. A field producing corn one year may be planted to potatoes or hay the next year. Government programs influence which kinds of crop gain or lose acreage over time. We are proposing agricultural programs that would influence farmers to rotate fields into and between perennial crops more and more often over the next 50 years.



2000 Distribution of Global Agricultural Acres



Monfreda et al. 2008

