When I grew up in another state on Maindale Farm, near the town of Morrow, it was a favorite household quip "Shall we go to Morrow today?" In this short paper of comment, we go today, tomorrow (agriculture 2030) is our destination.

The year I was born the USDA announced its vision of agriculture for the nation, in its Yearbook of Agriculture, 1948, "Our goal is permanancy in agriculture, an agriculture that is stable and secure, for farms and farmers, consistent in prices and earnings, and an agriculture that can satisfy indefinitely all our needs of food, fiber and shelter in keeping with the living standard we set."

Today, after 60 years, the wish list for profitability and prosperity is the same, and, I project, the desires will not change much by 2030. By 2030, the goal will be permanancy, just as today, we worry about the 100,000 acres of productive farmland turned under - under foundation and pavement.

I don't think the vision of yesteryear, today and tomorrow will differ much, and I expect hardly an iota of change from what USDA printed in its yearbook of agriculture in 1948. The yens and strivings are the same. However, I expect the gap to widen between what's on paper and what's on the ground.

Recently, the soldiers who were close enough to experience the bomb blasts in Iraq but not to die are being diagnosed with brain trauma, something very new in repertory of war injuries. One sign or symptom of this diagnosed brain traum is facial blindness - some soldiers no longer recognize the faces of people they know or meet. Policy-makers whose decisions can govern agriculture in the state are often blinded to what might be called "true" agricultural issues. To coin an oft-heard cliche, people find it easier to see the trees than grasp the forest.

Issue number #1 is population, an un speakable agricultural issue. The closest we get to an honest index of population is the oft-heard mantra "feed the world." Agriculture's mission is to feed people, to feed the world. This is 2030 issue to grapple with, and I am not alone in presenting it as the number one agricultural issue, only I will rephrase it in ways that make sense. I'm sure CDFA will be mum on the issue.

Volume 1, 2006, SMALL FASRM NEWS, produced by the Small Farm Center at UC-Davis, page 4, announced the very thought on its pages, in a column headlined, "Perspectives on Agricultural Sustainability in the 21st Century: "In California, a major force influencing the ability of agriculture to sustain itself is the rapidly increasing population...to maintain the agriculture here in the long run, 100 years, 500 years, we need to stabilize the population."

How well has CDFA in years past, since perhaps 1948, let's say, coped with the exploding population of the state? Since California is the number one state in agricultural production, much of what is said about the nation's agriculture is indeed said of California and CDFA. I have some fascinating quotes to bear out my thoughts on that.

"Our failure to adequately feed the world's population is as appalling as the environmental compromises that we make in that effort." Randy Moore, 1992

"Instead of feeding hungry people more, technology has been instrumental in feeding more hungry people." Robin Cole, 1992

"While the soil thins, the human population grows." Colin Trudge

The implications of these thoughts are astounding, because they connect population growth to food decline. Perhaps, you think "starvation," in the Malthus sense, but I prefer to think in more general terms about it: starvation is merely one point on a scale of measures. Malnutrition, hunger, are synonyms. But we also sport a vocabulary of "other" trees in the forest that we don't see: junk food, nutrient-dense organic food, genetic loss of heirloom cultivars. Nobody seems to think in terms of population growth when speaking of heirloom species loss.

I want to congratulate Richard E. Rominger for outlining the comprehensive issue of population in Small Farm News, connecting the ,manifold dots. I want to chastise CDFA for talking only of individual trees for the last 50 years. I think the first step for a sound vision of agriculture in 2030 in shedding the forest-blindness that possesses us, a brain trauma of our own making that may compromise the permanancy of our agriculture in the state.

Monster population is indeed a threat to agriculture and food security, but there's another aspect of population and permanancy that needs to be addressed in another way. Again, I borrow quotes of particular poignancy: "I recognize the right of this generation to develop and use the natural resources of the land; but I don not recognize the right to waste, or to rob, by wasteful use, the generations that come after us." Teddy Roosevelt, 1901.

In 1901 the pressing problem was conservation, converting the legacy of wildland, "God's green acre," into Mankind's green acre, the agricultural field. "Go West, young man!" was said of the plowsman. John Deere fled Vermont, the breadbasket of the 13 colonies, and settled his family in Illinois as a plow maker. In the new order of the world, Brazil may be the neo-Illinois; California the neo-Vermont! That is so hard to grasp, the agricultural history of America, the chase after fewrtility, vermont to Illinois to Iowa to California to the new soil of the sack of fertilizer to the new soil of Brazil, the plow chase went on, continuous, and California may be but a lap in the land race for food.

I'm speaking "forest" here, forget the tree. One of my medical textbooks, Crasilneck PhD and Hall MD, describes the sociopath in the words [excuse my jumping tracks]: the sociopath is one who "manipulates the environment with no real depth of feeling for

those involved." Taken literally or taken figuratively, the definition of sociopathy has its implications, for California's agriculture has demonstarted that it can extinguish soil, water and forms of life on this planet. I do not have tools in our shared vocabulary to express my thoughts well. So I want to ask you, "Is California agriculture of the soil a kind of agripathy of the planet?" I'm juxtaposing words and thoughts in the effort to look outside the box into 2030.

2030, in my viewpoint, will bring two changes to the world of agriculture. Farming has been a business, beholden to the bottomline, or, to quip a truism, the difference between right and wrong is dollar. That's a business ethic, the dollar. Farming will slowly evolve from a pure business sense to a profession, where the difference between right and wrong stems from a code of conduct. Farmers may by 2030 be sued for malpractice of the land. We already see the code of conduct emanating from the Endangered Species Act and the Clean Water Act that regulates farms to environmentally friendly practices.

In keeping with the emergence of a farming profession is the code of conduct written into National Organic Program and into the NRCS conservation code, yet not law except as applicable under the Clean Water Act for farmers. However, the picture is the grove, not the forest. If we think in terms of forest, we should think of Aldo Leopold, the restorationist who turned a farm ruined by bootleggers into productive land again. The story of his family's doings and accomplishments are chronicled in a book titled SAND COUNTY ALMANAC, an underappreciated book in agriculture.

By 2030 every farm in California will undergo some kind of land restoration. Organic farms restore the soil as a yearly practice.

Aside from these dumbfounding thoughts that may or may not make sense to you, or even organize the future for you, there are trees, or groves of trees that stand out even for us forest-blind thinkers. These issues will stress california agriculture's coping abilities:

the power squeeze: energy at the pump and on the farm: The threat to transportation will shrink markets for California. And create opportunities. Fewer cut flowers, e.g., will be grown in Central America. The electric tractor with a solar recharge is probably somewhere in the near future. Certainly downsized engines and power requirements will be compulsory in tight energy markets. Europe evolved walk-behind tractors, even as America's walk-behinds like Gravely and David Bradley went out of business. Our behemoths require massive inputs of fuel, and their design and development was influenced by cheap oil. The farm of the future, perhaps 2030, will see downsized power requirements, and perhaps multiple tractors of different power ranges to handle the variations in draft of various pieces of equipment. More likely, the answer to tight energy lies in new methods of farming like "organic no-till" one-pass agriculture. Lines of new equipment to
support that agriculture will evolve: roller-mashers, new stubble planters, even cover crops suited to rolling with a roller-masher.

The farmhouse will change, more sustainable construction will be used in barns and sheds. The latest, newest farmhouse of 2030 may sport:

solar geometry analysis, including daylight modeling
green roof to reduce any heat-island effect
(the roof is the site of tomorrow's power plants)
natural ventilation and sustainable, nontoxic building materials
fireproof homebuilding in California (to withstand wildland fires)
zero-discharge blackwater/graywater split systems
maintainance-free construction

Cropfields will see additions of unusual caliber. The environmental goal of field construction may be this: stormwater run-off will have the same volume and quality as when the land was wilderness. A tall order, but achievable by using bioswales with native wetland species and detention ponds. IPM will be replaced by adaptive ecosystem management, bent on closed-loop nutrient cycling and carbon sequestration. Farms will engage in intensive environmental monitoring, already exemplified in "precision agriculture." These trends to some extent will dictate the 2030 farm and 2030 agriculture.

New issues will stymie California's thrusts in agriculture, like the loss of stable climate. The Green Revolution was predicated on a stable climate and a legacy of top-quality soil, neither of which will be as abundant in 2030.

In general, the farms of 2030 will observe an array of objectives that define agriculture in 2030.

1. Waste, the highly visible sign of industrial inefficiency, will be discouraged more so than it now is. The farm design will move toward a wasteless enterprise, with no run-off pollution, no carbon footprint and no open-loop in recycling.

2. Farms will be called upon to grow soil and cleanse water, just like a forest that we can't seem to see for it is. Clean water may be the 2030 farm's most important product. The California farm of today has but one product that spans all others in shelf life, and that is pollution. Antibiotic resistance is homegrown down on the farm. The food we raise feeds us; the pollution we raise feeds our children.

3. No-impact technologies: forget septic systems, think zero-discharge systems like composting toilets and graywater greenhouses.

4, Food security: I remember the remark that John Jeavons has made, "We're using an agriculture that probably doesn't work in terms of soil."

I'll add to this two threads of thought: agriterrorism and ploy culture.

Terrorism is a new twist in the Twentty-first century. In 1950 it took an army of solders to deliver the bomb which fell on Hiroshima and it took a army of industry to make. Only an organized nation could flaunt such power of mass destructiveness. Today the same power is the hands of the individual, largely unused because of the ethics of scientists who share the knowledge of the power. The might once of nations has moved to the hands of the individual; deadly biological weapons could be made in home kitchens.

The world's calories come from four species: corn, wheat, rice and potatoes. 2/3rd's to 3/4th's do. Yet North America continent sports 5000 edible plant species, and Africa some 7000. We don't go into Safeway and pull a can Green Giant cattails from the shelf, because nobody invented the pontoon tractor when such a market was possible. As time passes, more and more niche crops will diversify the California diet.

In the past, ecocatastrophes like the chestnut blight of appalachia that drove half the 7000 families from their farmlands on the Virginia Blue Ridge were natural disasters, not manmade. The reality is that 2030 ecocatatrophes could be manmade, by the hands of a few agri-terrorists.

5. The change from business to profession is worth rementioning here. Ethics are becoming more and more important in tomorrow's world and for societal survival. One basis of ethic is the notion of sustainable agriculture, and I invite CDFA to look at the work of SAREP, UC-Davis, in past years to define the ethic, and the Leopold Center of Iowa State, perhaps the twin leaders in sustainable agriculture world-wide. If any current trend in agriculture survives till 2030 it is the concept and progress toward sustainable agriculture.

One final thought to bring this white paper on 2030 agriculture to a close. What crop in the U.S. has inspired the most research papers" Are you thinking King Corn? Or wheat? Or oranges? Is it lettuce from Fresno, the Iceberg Capitol of the world? Incidently, Fresno is the richest county in agricultural revenues. Farms make more there than other county in America; Fresno county is home to more people below the poverty line than any other California county!

No, lettuce isn't it. Corn isn't it. It's tobacco. I get a sense of agri-pathy from that statistic; do you?

research inagriculture is a blend of military money. The fortunes of agriculture in the U.S. have all been spin-off's of military research. Herbicides were developed for war. pesticides were developed to kill people in their initial development. Fertilizers like N and P and K are war materials. WE had potash inspectors in the Interior Department of 1912 - pre-WW1! Canning jars moved armies. perhaps the oldest agricultural food, honey, came about as a way of moving armies of soldiers. I heard someone once quip, if we could make bombs out of sunshine, every farm would be solarized.

And there you have it, the forest for the trees. Thank you for listening.

Bud Hoekstra