

## GETTING ATMs RIGHT – WE CAN DO THIS!

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Western irrigated agriculture is an essential and highly valued part of the mosaic of land uses, but the combination of urban growth, weather and flow variability and difficult farm economics threatens large losses of irrigated production, particularly from more reliable (senior) water rights. These are typically held on the earlier-irrigated best lands, which are also rapidly disappearing into urban sprawl, worsening losses of the best farming land as the rest is rapidly being consolidated into giant corporate operations. Farmers in workshops held by the Ditch and Reservoir Company Alliance (reports posted; website below) have shown great skepticism of the incremental and small changes in ATMs for many reasons. Their needs are greater than jumping one foot over a six foot ditch. What is not being undertaken is serious investigation on supporting them in **re-thinking the agricultural landscapes for increased resilience, ecosystem services and water supply, and conservation of productive capacity**. The urban water suppliers demand permanent supplies – why not take seriously the goal of permanent, resilient agriculture and farming families? **The new essay proposes reasons and actions.**

In Colorado, after many years of work, there is a new State Water Plan which is a necessary – but not sufficient – step in describing water supply needs. Yet, the long-term future of agriculture is not adequately addressed. There are a set of things we need to know about to act effectively, and this is one view of them. If we try to work with only one or two, we may be trying to jump a six-foot ditch one foot at a time! Almost half of Colorado land in farms and privately held ranchland is owned by “small and medium” farms often at high financial risk and under pressure from rural residential development and urban growth. Colorado’s future depends on not only a Water Plan but also conservation of capacity to grow. Keeping agricultural water available will not be enough if we lose farms for other reasons.

**The bottom line:** Landscape-scale diversified agriculture with net profit is necessary to conserve remaining productive capacity, increase resilience to weather and market variability, preserve remaining water quality and ecosystem services (e.g. de-nitrification of agricultural run-off), improve food security and preferences, and conservation of amenity, recreational and real estate values. This has been shown possible in an increasing base of research but not enough that is localized, demonstrated, and transferable.

### WHAT WE NEED TO LEARN MORE ABOUT:

**Long-term economics of diversified farming and rotation systems:** Converting to different kinds of production has costs, but how long does it take to pay off and begin profits for more complicated rotations, more cover crops, more diversified production and lower-input farming? Evidence is mounting that **low-input and more diversified** cropping restores soil and increases long-term profitability, but this is not adequately known nor is there adequate support for transition. Not so long ago, farming was much more diversified – almost every farm produced a range of crops and livestock, for use on the farm, feeding the farmers and animals, and some for sale. Resilience to weather and market surprises included more eggs and more baskets! Marketing for local sales has improved dramatically, but we’re still losing too many acres and families. We need **integration of alternative and conventional agriculture** experience into forms of information that producers, Extension and advisors use. See the National Research Council, 2010: *Toward Sustainable Agricultural Systems for the 21<sup>st</sup> Century* (free; [www.nap.edu](http://www.nap.edu) – enter title sought). Demonstration is the most valuable dissemination. Stewardship of the land is a very important farmer value; enable it!

**Right-Sizing for Net Profits:** If a group of farmers are going to grow a set of crops in rotation, can they right-size capital investments in different kinds of equipment? Working in groups is hard but beats going out of business and it might be a significant savings. Let's start to find out how to do this – local custom operations? Benefit corporations or cooperatives? Lower cost and higher net profit may be critical for resilience.

**Long-term Financing:** Our topsoil and long-term productive capacity is subject to annual or short-term planning horizons and short-term pressures for cash profits. Almost every other part of basic infrastructure is financed over the long term, typically 30 years, from home mortgages to water supply construction, to match costs to benefits over the life of things. We should be using state and municipal partnerships for long-term financing and **low-cost capital** from bonds and revolving fund mechanisms to conserve resources and farm families. Municipalities should also be buying regional food and fuel.

**Land and Soil Potential:** In the long term, we want to be working **with the terrain** and with the ecology for soil conservation, for wind breaks, integrated pest and pollinator management, drainage and filtration management, and conserving amenities and such benefits as wildlife (and hunting income). There is no doubt in the science that the **landscape scale** works far better for conservation than the rectangular grid. Again, we need to be re-vising our organization to transition toward this, to capture nutrients instead of buying and losing them, and to maximize returns on what we do add in.

**Land, Houses, and Tax Management:** Rural residential development that breaks up the landscape and management choices also costs counties typically far more for services than the taxes pay for – we lose all ways. People love being near open space, as well as wanting near-by basics and retail, so there are opportunities for “smart growth” that supports and fits with farming and provides high-quality low-cost housing that benefits buyers and sellers and the tax base. See CO Ag Dept. David Carlson's Agricultural Preservation and Development Associations – <http://aic.ucdavis.edu/research1/Conserv.ag.pdf> .

**Water Law, Efficiency and Agricultural Stability:** Private property rights are the basis for markets and we can increase their value and the values of conserving. **Long-term security** can increase with more support for public benefits that include avoiding risks from expensive and environmentally dangerous thresholds like total maximum daily loads. **Agriculture and urban partnerships** should implement water sharing on a flexible and durable basis using urban financial mechanisms for long-term investments, diversified cropping and securing quality of life. **Keys to efficiency** include making innovation easier with lower costs of trying new ways, lower **transactions costs and less expensive burdens of proof** – such as presumptive figures rather than all new engineering, and reasonable kinds of **reversibility** if we are badly surprised. Stability can't come from forcing or buying enough, but it can come from taking farming in safer directions. For example, rotational fallowing must also accommodate **cover cropping**. **Diversification** can accommodate fuel crops in the mix, providing safer and cost-controlled city and farm supplies. The **new technologies** of measuring and following flows are an opportunity we should take. Usable water supplies are not likely to increase.

Water problem recognition is an important part of building momentum but one foot at a time won't get us across a 6 foot ditch. We need progress in all of these parts to build towards a future where our grandchildren will want to and be able to farm. Ideally, a wide range of institutions can **begin working with ditches on their preferences for “what is the best we can do here for these resources into the future and these on-farm and off-farm interests?”** Thanks for your consideration, and corrections.

The powerpoint essay, **GETTING ATMs RIGHT** is a fully referenced approach to these issues and proposes a way forward. Please see [www.colorado.edu/ibs/eb/wiener/](http://www.colorado.edu/ibs/eb/wiener/) → presentations.