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LACK OF WATER TRIMS HERDS

Low meat prices last summer may have made consumers happy, but there are no more pleasant surprises in store.

Robert Raleigh, superintendent of the Eastern Oregon Agricultural Research Center in Burns, said low forage supplies this summer and high roughage costs could drive up the price of meat and may even create shortages.

"We started the summer with about half of the forage needed to feed the cattle we had," Raleigh said. "It is estimated that about one-third of the cattle were sold early. When the drought is over, there will be fewer cattle on the market because they will have been sold prematurely and that means the price to the consumer should go up."

Raleigh said uncertainty about how long the drought will last has been a major factor in cut-backs on eastern Oregon cattle ranches.

(Continued →)

"If we knew the drought would be over next year, we could have hung on to some cattle this year," he said. "But if the drought continues, any money spent on feed this year would be like pouring it down a rat hole because next year we could be in the same situation with no feed to buy."

Raleigh predicted the situation will be even worse in the next few years.

"There are going to be fewer cattle for sale when feed is available again because many producers who can stay in business will be saving their female stock to build back their herds. We should have a real beef shortage in two or three years."

During the summer, some grass seed growers baled straw to sell to ranchers in eastern Oregon for cattle feed.

"Rye grass straw was advertised at \$39 a ton delivered to Burns but the actual costs were probably closer to \$55 a ton for good straw delivered in Burns. It takes roughly another \$20 worth of feed supplement to make the hay usable for many classes of livestock. This puts it in the \$70 to \$80 a ton bracket, he said. "And even if all the grass straw in the Willamette Valley had been baled, it still wouldn't be enough to satisfy the feed requirements in the drought-stricken surrounding states."

Eastern Oregon Agricultural Research Center scientists worked with ranchers all summer on drought problems. Guidelines were issued to help beef producers cope with the drought and long-term studies were reviewed carefully to see if findings could be related to drought concerns.

"We advocated early weaning of calves to move them more quickly to higher quality feed with less expense because they're small." Raleigh said. "Another tip we have been giving is to cull herds carefully. Cull out all low producers and save the feed for the best producers. If ranchers culled out every third cow, they could cut production by only one-fifth instead of one-third."

One valuable drought-related research project conducted by Forrest Sneva, USDA-Agricultural Research Service range scientist at the Burns center, involved cattle subjected to drought stress.

"It was surprising to learn that in many instances, the reduction of daily water intake by 25 to 35 percent over a summer grazing period did not have a significant effect on the performance of mature cattle," Sneva said. Suckling calves were more susceptible to water stress, researchers learned, because one of the first effects of lack of water is for the mother cow to stop producing milk. That cuts off the food source for her nursing calf.

"In most instances during the study, the recovery weight gain once water was made available to the cattle compensated for the loss during stress," Sneva said. "However, the situation this summer with prolonged summer temperatures and little water made it difficult to manipulate the management of the cattle to take advantage of the research."

Research on drought and cattle will continue and results will be passed on to ranchers as soon as possible. (Reprinted from "*Oregon's Agricultural Progress*", Fall, 1977, Agricultural Experiment Station, OSU)

PRIORITY GOALS

Six areas which should be priority concerns if national clean-water goals are to be achieved were outlined by Gus Speth, member of the Council on Environmental Quality, at a conference of the Water Pollution Control Federation held October 2-7, 1977 in Philadelphia. Things he said must be done:

- * Focus on public health problems, on eliminating toxic substances that can accumulate in fish and shellfish tissues or find their way into drinking water.

- * Pay increased attention to abating runoff pollution: the heavy loads of soil, pesticides, nutrients, organic matter, and heavy metals carried into surface waters from urban streets and agricultural, construction, and forest activities.

- * Adopt more forceful preventative strategies to ensure that new pollution problems are not created as older ones are eliminated.

- * Be more sophisticated about and concerned with the overall hydrologic system--natural channels, shade, streamside vegetation, and wetlands.

- * Reinforce voluntary compliance with a credible enforcement system, one that can deal effectively with the small number of hard core recalcitrants, as well as with problems of municipal noncompliance and improper operation and maintenance.

- * Ensure that publicly owned treatment works are cost effective, are built only after rigorous consideration of non-structural alternatives, and are properly sized and situated to avoid inducing unplanned growth.

HARD TO BELIEVE -- A recent national poll indicates that some 50% of the population still believes that America now imports no oil.

ENERGY FROM MANURE

The federal government seriously is studying ways to collect a plentiful natural resource, manure, for production of methane, a natural gas just like the stuff that keeps furnaces stoked in winter. The Department of Energy's biomass fuels branch is closely looking at feasible ways of collecting the barnyard residues. An estimated 237 million metric tons of manure is lying around, just waiting for government experts to discover a way to ferment the wastes and get the methane into the pipelines. Small farms and villages in mainland China and India have been using this resource for years. And their experience has uncovered a helpful clue to getting the most out of your manure...apparently potency of odor and methane production are interrelated.

Pig dung ranks highest in fragrance, followed by horse and cow manure. Last year DOE spent \$1.9 million building and operating experimental stations in Nebraska, Colorado, and Washington state. So far, the only drawbacks are collection and processing of the product, since, understandably, it is not deposited at one location; reheating requirements for proper fermentation; and close monitoring to prevent the volatile vat from exploding.

Research has been underway at Oregon State University for several years on the conversion of animal wastes to methane and the production of feed (algae). A preliminary report was issued in October 1975 entitled "*The Use of Waste Conversion with By-Product Recovery and Recycling*".

Learn all you can about ecology and the environment. Your city, county or school library should have a good supply of information.

Encourage the establishment of bicycle lanes and trails.

DRINKING WATER RESEARCH



Microbiologists at Oregon State University have discovered the source of some of Oregon's drinking water contamination problems.

Several years ago, concern about the safety of redwood reservoirs began surfacing when the drinking water from some tanks failed to meet safe drinking water standards because of coliform bacteria. Redwood tanks are used for drinking water storage in some parks, resorts, municipalities and smaller communities in the western United States and Canada.

"We studied the wells serving one reservoir and found they were not the source of contamination," said Ray Seidler, associate professor of microbiology, who headed the study. "We were puzzled as to the source of bacterial contamination because the incoming clean water was clean and there was no contamination in the reservoir from insects, birds or rodents."

The most common bacterial contaminant in the water was identified as *Klebsiella pneumoniae*, an intestinal bacterium often carried by both humans and animals.

Based on their experiences with both good and poor water quality systems and with sponsorship by the U.S. Environmental Protection Agency, the microbiologists designed an experimental reservoir they hoped would solve the coliform contamination. After nearly two years of operation, studies showed the success of their project. The experimental tank, located on the OSU campus close to the research lab, has consistently yielded drinking water free of *Klebsiella* and other coliforms.

Findings of the study were given to National Tank and Pipe Company in Portland which manufactures most of the redwood tanks used in the West. The company has reprinted copies of the recommendations for engineers and others responsible for maintaining redwood tanks.

Redwood tanks can give satisfactory water when there is adequate chlorination and short holding periods of water in the reservoir, the scientists report. Older reservoirs generally provide water of higher quality since most of the growth promoting nutrients have become eliminated. (More details in WRR-54, dated October 1977, from WRR, OSU).

USE OF WATER

As one examines the history of domestic water technology, it is apparent that some societies have used much more water than others did. In fact, the amount of water consumed since Roman times did not increase steadily; it actually decreased during the Middle Ages and then stayed essentially level for some time. Within the last 100 years, however, per capita water consumption in the Western world has grown at a phenomenal rate. Not until 1912 did Londoners use as much water as the ancient Romans, and today people in Los Angeles use over four and one-half times that amount.

WATER CONSERVATION DEVICES

For most Americans water is never more than a few steps away. The closeness and easy accessibility of water promotes the illusion that water is taken for granted. Very few people are concerned with the source of water flowing from the tap or how and if water was treated. As long as water is in unlimited supply and of good quality there is no cause for concern. However, with growing concern for energy conservation, maintaining the water quality in our natural stream courses and the need to reduce the volume of wastewater that has to be treated, water conservation is becoming an important factor in everyone's daily life.

A capsule report entitled "*Water Conservation Devices -- Residential Water Conservation*" has been published by the Office of Water Research and Technology, USDI, and is available through the U.S. Government Printing Office.

Water conservation devices really have three dimensions: first, they conserve water; second, they reduce wasteflows; and third, they conserve energy. A closer look at these three elements reveals:

* Water consumption reductions for residences in one community averaged 25 percent.

* Wasteflow reductions of 40 percent have been estimated for on-lot wastewater systems with currently available technology.

* A large university showed estimated annual savings of \$100,000 in water, wastewater treatment and energy costs after installation of water conservation devices.

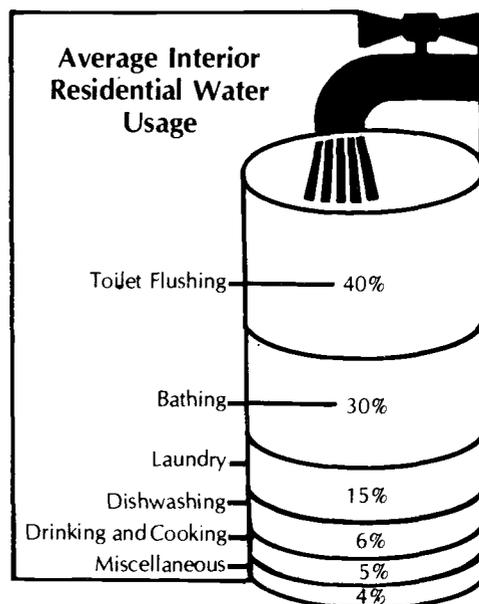
* Potentially significant reductions in the initial costs of new dwellings may be realized by virtue of the smaller-sized plumbing systems components.

PORTLAND-VANCOUVER STUDY

A Metro Water Resources Study is being conducted by the Portland District Corps of Engineers in partnership with the Columbia Region Association of Governments (CRAG). Six problem areas being studied are wastewater management and water quality, drainage management, water supply, navigation, recreation, and fish and wildlife.

Thus far, the following water supply problems in the Portland Metro Area have been identified from contacts with the public, water suppliers, and other agencies concerned with drinking water supplies in the region.

- (1) Lack of long-range planning;
- (2) Shortages of water supplies in some outlying areas not served by major suppliers;
- (3) Possible inadequacy of water supplies for fire demands;
- (4) Lack of information to evaluate potential of groundwater supplies as a source;
- (5) Relationships between water wholesalers and purveyors concerning issues such as price, length of contracts, availability of water during periods of water shortage, and "ownership" of sources or equity in facilities;
- (6) Capability to meet the new sampling and testing requirements as provided in the Safe Drinking Water Act of 1974.



STORMWATER MANAGEMENT

A continuation and reexamination of the state-of-the-art of storm and combined sewer overflow technology is presented in a recent EPA publication. Essential areas of progress of the stormwater research and development program are keyed to the approach methodology and user assistance tools available, stormwater characterization and evaluation of control measures. Results of the program are visible through current and ongoing master planning efforts.

Assessment of urban runoff pollution is referenced to the developing national data base, localized through selective monitoring and analysis, and quantified as to potential source and magnitude using techniques ranging from simplified desktop procedures to complex simulation models. Stormwater pollutants are characterized by (1) source potential, (2) discharge characteristics, (3) residual products, and (4) receiving water impacts.

Control and corrective measures are separated into nonstructural, termed Best Management Practices (BMPs), and structural alternatives. Best Management Practices focus on source abatement, whereas structural alternatives roughly parallel conventional wastewater treatment practices of end-of-the-pipe correction. Structural alternatives may include storage (volume sensitive) and treatment (rate sensitive) options and balances. Multipurpose and integrated (dry-wet) facilities have been the most successful with process simplicity and operational control flexibility prime considerations.

Best Management Practices have decided benefits over structural alternatives--including lower cost, earlier results, and an improved and cleaner neighborhood environment--but lack quantified action-impact relationships. For combined sewer overflow abatement, increasing degrees of structural control are necessary the report states.

Successful program implementation is illustrated for several selected case histories (From *"Urban Stormwater Management and Technology--Update and Users' Guide"*, September 1977. EPA-600/8-77-014, EPA, Cincinnati, Ohio 45268)

IMPACT STATEMENTS

Environmental impact statements are no longer filed with the Council on Environmental Quality (CEQ). Instead, they are filed with the headquarters and the appropriate regional offices of EPA. The change took effect on December 5, and what it means is that if you have general questions about any impact statement prepared by a Federal agency in Region X (i.e., Alaska, Idaho, Oregon and Washington), contact the Environmental Evaluation Branch (M/S 623), EPA, 1200 Sixth Avenue, Seattle, WA 98101. The phone number is (206) 442-1595.

WETLANDS CASE

In what is viewed as a landmark case, New York State has obtained its first conviction of a builder for violating the state's 1973 Tidal Wetlands Act. A Long Island builder dredged a channel and used the spoil to fill in a wetlands area to increase the value of the developed property. While other cases have been brought to court under the law, they have all ended with negotiated settlements or guilty pleas. This is the first case since the law was passed that resulted in a conviction after trial, according to state attorneys.

GEOHERMAL NEWS

Five members of the Geo-Heat Utilization Center at the Oregon Institute of Technology, Klamath Falls, will be working on a grant from the Department of Energy--Division of Geothermal Energy during the 1977-78 fiscal year. They will be assisting the six north-western states of Alaska, Idaho, Montana, Oregon, Washington and Wyoming in the evaluation and utilization of their geothermal resources.

The objective of the project is to develop realistic scenarios for the development and commercial utilization of geothermal energy resources (both electric and nonelectric) in the Northwest Region of the United States; evaluating the potential state and regional contributions to the national energy goals; and identifying the type, magnitude and scheduling of public action needed to support the materialization of the scenarios.

Seven new research associates have been hired to assist with the project. Don Karr, Research Associate at the Center, is the principal investigator of the grant.

The Center also coordinates the following six geothermal research projects:

1. Evaluation and Design of Downhole Heat Exchangers for Direct Applications
2. Resource Assessment, Engineering and Economic Analysis of Agri-business Geothermal Utilization of Klamath and Snake River Basins, Oregon
3. Hydrology and Geochemistry of the Klamath Falls Urban Area
4. Use of Geothermal Energy for Aquaculture Purposes
5. Geothermally Heated Greenhouse Demonstration Project
6. Geothermal Planning for Northwest Region

RESOLUTIONS ADOPTED

At its annual convention held November 29-December 1, 1977, the Oregon Association of Conservation District (OACD) adopted a resolution calling for Soil and Water Conservation Districts to be designated the local management agency to implement non-point source pollution programs, more commonly referred to as "Section 208" of the EPA Water Quality Act. The resolution also called for the State of Oregon to provide necessary budget support.

OACD will urge State and County ASC Committees to recognize the need for funding of riprap for streambank stabilization and underground drainage for pollution abatement by reduction of water runoff.

Pertaining to and supporting the 160-acre limitation, OACD is requesting the Congress to review the Reclamation Act of 1902 (with amendments) in the context of current conditions and modern farming techniques, rather than from the perspective of 1902 practices.

SEWAGE CONSTRUCTION

One of the most important features of the Water Pollution Control Amendments of 1977--as far as the Pacific Northwest and Alaska are concerned--is the authorization of more than \$179 million in Federal funds during the current fiscal year to help local communities build municipal sewage treatment facilities. The allocations: for Alaska, \$19,057,000; for Idaho, \$22,284,000; for Oregon, \$58,383,000; and for Washington, \$79,596,000. Nationwide, Congress authorized \$4.5 billion for sewage treatment construction funds in Fiscal Year 1978, and \$5 billion annually for Fiscal Year 1979 through Fiscal Year 1982.

WATER POLLUTION CONFERENCE

After initial failure to reach agreement early this year, committees in both Houses of Congress held additional hearings on the Federal Water Pollution Control Act (FWPCA). The Senate developed a broad range of adjustments, changes refinements, and alterations in the Act. A conference between the two bodies produced further changes.

The goal of requiring "best available technology" for industries was postponed from 1983 to 1984 in the case of "conventional pollutants." Exemptions could be granted if an industry demonstrates that the cost of BAT exceeds benefits. However, in the case of toxic chemicals, specifically 129 chemicals listed in the bill, industry must install BAT with no exemptions provided. For toxics not listed, industry has until 1987 to install cleanup equipment.

Congressionally approved federal projects have been exempted from obtaining Section 404 permits for dredging and filling activities provided that the Congress has seen an EIS (environmental impact statement). Provisions for delegating responsibility for Phases II and III of Section 404 to the states have been made. Federal jurisdiction has been extended to 200 miles for the purpose of recovering costs of oil spills from responsible tanker owners. Federal funding is increased for land treatment of wastewater.

The conferees did not provide for a congressional veto over EPA regulations. They did allow municipalities to recover treatment costs through property taxes rather than requiring them to base charges on use. The compromise package did not provide for limiting the size of sewage plants or pipes, thus placing no limits on growth.

Funding for the FWPCA is extended for five years to permit more coherent planning. Other provisions include: completion of a national estuary report; the creation of a clearinghouse for data developed in alternative sewage treatment technologies; operation and maintenance grants for sanitation and sewage treatment research in Alaska; authorization for 100% federal funding for areawide Section 208 planning, providing the initial grant has been made prior to October 1, 1977; a requirement that states must complete their 208 plans within three years; a set-aside of 4% of construction grant money for rural areas utilizing alternatives or unconventional sewage treatment programs; and a provision permitting the Environmental Protection Agency to extend technical and legal assistance to small communities that receive grant money.

The conferees have also agreed to language proposed by the Senate which provides for an eight-year extension of the 1977 municipal treatment requirement for facilities employing innovative technology for wastewater treatment. Both houses of Congress are expected to vote on the conference report early this session. (From "*Conservation Report*", Report No. 35, Dec. 23, 1977. National Wildlife Federation, Wash., D.C. 20036)

Fearing loss of the city's appealing environment and social characteristics, citizens of Boulder, Colorado, adopted new regulations limiting Boulder's population growth to no more than two percent per year, making it the largest U.S. city to try to limit population by regulating the amount of housing available.