

Utilizing

GROUNDWATER

reservoirs

A study has recently been initiated in California to develop criteria and investigational techniques which can be used to determine the feasibility of a pumped well or group of wells in advance of construction. In the past, wells have been located without sufficient geologic and hydrologic information concerning the type and location of strata; consequently, in many cases their effectiveness has been reduced because strata are not porous enough to transmit water freely under pumping. Study will be given to exploration techniques for use in determining more accurately the location of underground strata and their ability to transmit or convey water.

Other factors affecting well yield to be investigated include relatively high artesian pressures of underlying strata, presence of highly impermeable overlying strata, major sources of groundwater from over-irrigated fields, leaky ditches, or natural streams. Consideration of these factors is complicated by irrigation practices, intermittent service of irrigation ditches, and seasonal fluctuations of flow in streams, but will be included in the analysis in order to locate wells properly and obtain maximum effectiveness in maintaining a reasonable water-table level.

The criteria are being developed by analytical procedures, laboratory investigations using hydraulic models, and field tests.—*V. H. Scott, Dept. of Irrigation, Davis.*

Causative agent of

BOVINE ABORTION

Evidence has been found that may lead to the discovery of the causative agent of cattle abortions that occur in the foothill areas during the summer and fall months. So far, the cause of the disease is not known and there is no effective control.

The fetuses aborted due to this disease are well developed; abortions usually take place late in pregnancy. There is a generalized lymphoid enlargement, a coarsely nodular liver and multiple sub-

mucosal hemorrhages. The basic tissue response of the fetus to this disease is a focal or diffuse granulomatous change.

The tissue response of these fetuses tends to confirm the epizootiologic evidence that this type of abortion is an infectious entity. Reports of fetal reactions to varying types of microbial agents are limited, but impressive parallels exist between these reactions and those reported in other species to certain types of viruses.

The strict geographic distribution suggests the further possibility that the restriction of the disease to the foothill and mountainous portion of the state is related to the local habitat of a disease vector, or a wildlife reservoir, or both.

Present research tools allow separation of this specific type of abortion from other known types of bovine abortions and, even more important, the narrowing down of the field of investigation by excluding other unknown types of abortion.—*Peter C. Kennedy, School of Veterinary Medicine, Davis.*

Oxidized flavor in

MILK

Oat hay and alfalfa hay used as dry feed are being investigated for their effect on oxidized flavor in milk. Green succulent feeds yield milk with greater resistance to this off-flavor than dry feeds, but reliable information is not available to guide dairymen in selecting dry feeds that produce milk with greatest resistance to oxidized flavor. Current feeding trials are designed to determine which feeds are most effective in delaying oxidized flavor and to identify the chemical constituents in feeds that are associated with high resistance to the off-flavor.—*W. L. Dunkley, Dept. of Food Science and Technology, Davis.*

Studies on

LAMB PALATABILITY

Producers and processors of lamb need more information in order to be able to supply the public with this meat in the form that is wanted.

Present studies are concerned with the

eating quality of meat from lambs of different ages, grades, and on different feeds. Information is being collected on such items as yield of raw and cooked meat, eating quality—including color, flavor, texture, and tenderness of the cooked meat—physical measurements of color and tenderness of the cuts, and moisture and fat content of the lean tissue. Cuts being studied include the leg for roasting, loin chops for broiling, and the shoulder for braising. It is hoped that the findings will provide specific information on the quality of meat from carcasses graded Choice, Good, and Utility, from milk-fed lambs, and from lambs that have been on pasture and on feedlot.—*Pauline Paul, Dept. of Home Economics, Davis.*

Improving

SUGAR BEET QUALITY

A search has begun for a chemical growth regulator which will cause an increase in the sugar content of sugar beets. Desirable, high sugar percentages are ordinarily obtained with cool climate and nitrogen deficiency. This results in a reduction in vegetative growth of the beet plant; the plant continues to produce sugar, but instead of using it for growth the sugar is transported to the root for storage.

A chemical which could be used for artificial ripening should be capable of similarly altering the growth-storage balance of the plant. Maleic hydrazide can be used for that purpose, but the increases in sugar percentage are small. The appearance of several promising new chemical growth regulators makes it desirable to screen these materials for their influence on sugar beets. Sugar beets are grown under conditions favorable to growth rather than sugar storage, and test materials are applied as foliar sprays. Growth rates of tops and roots and the sugar content of roots are measured to determine whether a shift in the growth-storage balance has been obtained. Chemicals which work well in these tests will be field-tested to determine if practical procedures can be developed for their successful commercial use.—*R. S. Loomis, Dept. of Agronomy, Davis.*