

FOR A GOOD PASTURE.

Mr. A. Jessen, Salt Lake City, writes the Experiment Station for information in regard to seeding a 320-acre field for pasture. As our ranges are being narrowed down each year, the matter of suitable pasture becomes of general importance, and so it was thought best to answer Mr. Jessen through the press.

With the letter sent a rough sketch of the ground with the following description of the soil:

1. Gravelly soil, heavy black sage.
2. Clay, bottom soil, white and black sage.
3. Good strong bottom soil, gravelly, sandy and clayey. Sage brush and some greasewood.
4. Natural sod with rabbit brush.
5. "Alkali," swampy.

The letter states that the altitude is from 6,000 to 6,500 feet, and that, "the alkali occurring is sulphate of lime, or gypsum."

It would appear that there is a mistake in regard to the alkali being common gypsum, and I would suggest that some of it be sent to the station in order that its true nature may be ascertained. The altitude is somewhat high for clovers, though I believe it best to try them. Rabbit brush, white sage and greasewood indicate the presence of alkali, but if it is not too strong a very rich soil will generally be found.

In making a pasture the idea is to get grasses that mature at different times and mix these so that all through the season there will be one or more grasses of the mixture at their best. By this means there is a continuous growth of grass from early spring to late fall. Aside from this we have found at this experiment station that a mixture proved to be nearly as good again as any one of the grasses taken separately.

On soils classed as No. 1, above, sow the following mixture per acre: Red clover, 2 pounds; tall meadow oat grass, 7 pounds; orchard grass, 7 pounds; meadow fescue, 5 pounds; sheep's fescue, 2 pounds.

For soils classed as No. 2, dry: Peavine or mammoth clover, 2 pounds; tall meadow oat grass, 5 pounds; orchard grass, 5 pounds; meadow fescue, 5 pounds; timothy, 2 pounds.

For soils classed as No. 3, dry: Peavine or mammoth clover, 2 pounds; tall meadow oat grass, 3 pounds; orchard grass, 3 pounds; tall fescue, 3 pounds; timothy, 4 pounds.

For soils classed as No. 4, dry: Alsike clover, 2 pounds; tall meadow oat grass, 3 pounds; orchard grass, 3 pounds; tall fescue, 3 pounds; timothy, 4 pounds.

If any of the soil under classes 2, 3, and 4 are wet for any length of time, either fall or spring, the orchard grass and tall meadow grass must be omitted, the tall fescue increased and red top put into the mixture.

For soils classed as No. 5: Alsike clover, 3 pounds; tall fescue, 10 pounds; red top, 10 pounds.

If it is too wet for red top then use the following on No. 5: Water fescue, 10 pounds; floating meadow grass, 10 pounds; water meadow grass, 10 pounds.

If there are spots on which the alkali is so strong, that vegetation does

not occur, it may be well to try the Australian salt bush.

These mixtures may be somewhat modified to suit different conditions, but in so doing a few points should be remembered. Clover should always be in the mixture if possible, putting red on the dry thin soils; peavine or mammoth on the richer soils; and alsike on the damp or wet soil. Orchard grass and tall meadow oat grass are very sensitive to water and timothy will not stand swamp land at all. Meadow fescue is best for the dry soils, while tall fescue does well on a range of soil from dry to quite wet. If the ground is very rich timothy may be increased to five pounds per acre, but on the very poor thin soils it should be reduced to not more than one pound per acre.

Mr. Jessen says that at best he only intends "to clear the brush off and stir the surface with a disc harrow." It is to be seeded to grass, by all means the ground should be plowed and thoroughly harrowed. This method will surely pay.

The seed can be obtained from any of the large seed houses, either east or west. The Australian salt bush can most likely be obtained from the San Francisco seed houses.

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THE CAREY GRANT.

A few people are finally waking up to the possibilities of the Carey grant. Before the Legislature adjourns, the advisability of the acceptance and utilization of this grant at this time must be decided. What is known as the Carey grant was the action of the Fifty-third Congress in passing as an amendment to the general appropriation bill the following:

Sec. 4. That to aid the public land states in the reclamation of the desert lands therein, and the settlement, cultivation and sale thereof in small tracts to actual settlers, the secretary of the interior with the approval of the President, be, and hereby is, authorized and empowered, upon proper application to the State to contract and agree, from time to time, with each of the states in which there may be situated desert lands as defined by the act entitled "An Act to provide for the sale of desert land in certain states and territories," approved March third, eighteen hundred and seventy-seven, and the act amendatory thereof, approved March third, eighteen hundred and ninety-one, binding the United States to donate, grant and patent to the State free of cost for survey or price such desert lands, not exceeding one million acres in each state, as the state may cause to be irrigated, reclaimed, occupied, and not less than twenty acres of each one hundred and sixty acre tract cultivated by actual settlers, within ten years next after the passage of this act, as thoroughly as is required of citizens who may enter under the said desert land law.

Before the application of any state is allowed or any contract or agreement is executed or any segregation of any of the land from the public domain is ordered by the secretary of the interior, the state shall file a map of the said land proposed to be irrigated which shall exhibit a plan showing the mode of the contemplated irrigation and which plan shall be sufficient to thoroughly irrigate and reclaim said land and prepare it to

raise ordinary agricultural crops and shall also show the source of the water to be used for irrigation and reclamation and the secretary of the interior may make necessary regulations for the reservation of the lands applied for by the states to date from the date of the filing of the map and plan of irrigation, but such reservation shall be of no force whatever if such map and plan of irrigation shall not be approved. That any state contracting under this section is hereby authorized to make all necessary contracts to cause the said lands to be reclaimed, and to induce their settlement and cultivation in accordance with and subject to the provisions of this section; but the State shall not be authorized to lease any of said lands or to use or dispose of the same in any way whatever, except to secure their reclamation, cultivation and settlement.

As fast as any state may furnish satisfactory proof according to such rules and regulations as may be prescribed by the secretary of the interior, that any of said lands are irrigated, reclaimed and occupied by actual settlers, patents shall be issued to the state or its assigns for said lands so reclaimed and settled: Provided, that said states shall not sell or dispose of more than one hundred and sixty acres of lands to any one person, and any surplus of money derived by any state from the sale of said lands in excess of the cost of their reclamation, shall be held as a trust fund for and be applied to the reclamation of other desert lands in such state. That to enable the secretary of the interior to examine any of the lands that may be selected under the provisions of this section, there is hereby appropriated out of any moneys in the treasury, not otherwise appropriated, one thousand dollars.

Approved, August 18, 1894.

The legislatures of Wyoming and Idaho promptly accepted the grant during the session of 1894-5, establishing the price of land at 50 cents an acre and providing that contracts should be made with private companies for the construction of the irrigation works—all details, including plans of construction and the price to be charged for water rights to be approved by the State. Also, in accordance with the policy of the states, declaring water and land to be inseparable and that settlers purchasing water rights under such works should have a pro rata interest in the irrigation systems, so that the farmers under each ditch should finally own the same, thus turning it into a district system probably as near a combination securing the benefits of the California district law and the Utah basis of construction ownership and control as any legislation so far devised can secure.

In Wyoming large works are under way in the Big Horn basin and smaller operations are about to commence near Ft. Bridger.

In Idaho the withdrawals have not been so great, the controversy between the American Falls and People's Co., (both practically Utah concerns) being at present before the public as a leading feature.

In Montana and Colorado the grant was accepted and plan of operation was provided.

Nevada accepted the grant but made no provisions for utilizing it.

Washington accepted but the price of land was placed at \$8 per acre, thus defeating the object of the grant and satisfying the water company that opposed its acceptance.

As Wyoming has been a large im-