PROJECT TITLE: Production of chickpeas, dry peas, and lentils under dryland management. 1989.

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OBJECTIVES:

To evaluate and compare the yield, quality, and biomass production of large seeded legumes under dryland management.

SUMMARY:

Three large seeded legume species were compared for consideration as alternate crops on dryland. Results from 2 years of data indicate that chickpeas demonstrated yield potentials which would produce a net return nearly twice that of feed barley in an average moisture year, and a significantly greater return on low moisture years. We feel that dryland chickpeas has the potential to be a profitable crop under dryland management.

Other positive considerations for chickpeas over the dry pea and lentil species, are that chickpeas grow upright on a bush type plant which sets seed 4-5 inches above the ground which would facilitate combining. The chickpea leaves contain a chemical which repels insects and grasshoppers, thus insecticides are not required for crop production.

RESULTS:

The data is presented in 3 tables. Table 1 describes the yield and test weight of chickpeas and dry peas for 1988 and 1989. The low yield of Surutato in 1988, and the lack of yield data in 1989 is due to the fact that both varieties are of the Kabuli type which do not have any inherent resistance to seedling rot, as do the Desi types Garnet or Sarah. It should be noted that the total rainfall in 1988 was less than 6 inches. The total biomass yield is given in Table 2. Total biomass yields ranged from 1.4 to 0.7 tons per acre of dry matter. Seven varieties of Lentils were evaluated in 1989 (Table 3). Yields ranged from 624 to 258 lbs per acre. Indian Head lentil is grown more for green manure, as can be noted by the low seed yield of 238 lbs per acre and a total biomass yield of 1487 lbs per acre.

SUMMARY:

We anticipate to continue to develop a strong program for chickpea production on dryland. We will continue to evaluate dry peas and lentils, however, less emphasis will be given to these large seeded legume species at this time.

Table 1. Yield and test weight of chickpeas and dry peas grown under dryland management, SARC, Huntley MT. 1988, 1989.

Variety	Yield[1] Lbs/Ac 88	89	Test Weight Lbs/Bu 88	89
UC-5 Chickpea	1184	----[2]	57.0	-----
Surutato Chickpea	329[2]	----[2]	57.0	-----
Garnet Chickpea	840	1384	57.8	57.1
Sarah Chickpea	674	1425	61.5	58.6
Latah Dry Pea	536	624	61.5	62.0
Umatilla Dry Pea	445	639	60.7	61.1
Alaska 81 Dry Pea	368	583	60.7	62.5
Columbian Dry Pea	358	725	60.9	61.6

1 For yield comparison dryland feed barley yielded 17 bushel in 1988, and 45 bushels in 1989.

2 The Desi type chickpeas were not seed treated thus yields were suppressed severely due to sporatic emergence. An exception was UC-5 in the dry 1988 crop year.

Table 2. Yield of total biomass, including seed weight of chickpeas and dry peas grown under dryland management, SARC, Huntley, MT 1988, 89.

Variety	Dry Matter Yield Tons/Acre 1988	1989
UC-5 Chickpea	1.4	----
Surutato Chickpea	0.6	----
Garnet Chickpea	1.3	1.2
Sarah Chickpea	1.1	1.4
Latah Dry Pea	1.0	0.9
Umatilla Dry Pea	0.9	0.7
Alaska 81 Dry Pea	0.9	0.9
Columbian Dry Pea	0.9	0.9

Table 3. Yield of seed, test weight, and total biomass (seed included) of lentils grown under dryland management, SARC, Huntley MT 1989.

Variety	Seed Yield Lb/Ac	Test Weight Lb/Bu	Dry Matter Yield Lbs/Ac
Emerald	624	56.7	1950
Crimson	548	58.1	1676
Laird	440	55.6	1934
Brewer	355	55.9	1141
Palouse	288	56.1	893
Red Chief	258	55.6	914
Indianhead	238	59.8	1487