PRACTICES TO CONSERVE WATER*

Alfalfa & Pasture

1) March 15-April 15 – if dry irrigate to just fill crop root zone. Alfalfa can root to 4 ft or more if soil depth is available
2) Irrigate as water supply permits (alfalfa yield is linear with water supply, e.g. doubling water applied, doubles yield up to about 35 inches of water)

Small Grains

1) Plant Early
2) Spring barley will give more grain per unit water than spring wheat 2-row:(Baronesse, Xena, Bancroft, Camas or Hector), 6-row: Brigham, Coulter or Statehood
3) Irrigate if necessary or for tillering (yield potential is established here)
4) Spring wheat: 20%-40% water supply, use Bannock.; 40-60% water supply, hard red spring: Jefferson, Bannock, Zeke; hard white spring: Pristine, Winsome
5) Irrigate 2 to 3 times from early boot to milk stage. Make last irrigation at milk to soft dough stage, except on sands. Then irrigate 1-2 more times if possible.
6) If enough water for only one or two irrigations, seed at 50-60#/ac and fertilize for yield target of: 1 irrigation – 40 bu/ac; 2 irrigations – 50 bu/ac.
7) If water is limited, do not plant soft white varieties (drought gives higher protein which is harder to market)

Cereal Forage

1) Oats or spring barley will give more tonnage than spring wheat
2) Water once at late tillering
3) Harvest at late boot to head emergence

Sugar Beets

1) Plant only acreage for which you have full season water
2) Preplant irrigate if necessary (light) to prepare seedbed
3) Plant early
4) Last irrigation – SCI and SEI, September 1, WI, Sept. 15
5) Use short runs, light irrigation
6) Irrigate 12-14 day intervals in alternate rows—more frequently on sands
7) Sprinkler—12 hour sets, 7-9 days (silt loam soils), more frequently on sands (do not dry below 50% available water)

Potatoes

1) Plant acreage for only 100% water supply
2) Irrigate adequately as needed
3) Last irrigation August 15, EI and CI; Sept. 1, WI
4) Do not under irrigate early in season

Beans

1) Make bed with furrow slickers
2) Irrigate every other row—wet to seed row only
3) Incorporate herbicide and plant
4) Irrigate frequently and lightly
5) Last irrigation August 10, or as recommended by your fieldman

*Recommendations by University of Idaho Cooperative Extension Drought Task Force developed Feb 22, 1977. Modified by Howard Neibling , Larry Robertson and Stan Gortsema, spring 2001

6) Use PAM and consider increasing furrow flow rate with shorter set (only long enough to water to seed row) for more uniform irrigation and better water use.

Corn

1) Pre-irrigate if necessary (light)
2) Prepare seedbed
3) Plant early
4) Use early maturing variety
(Normal—10 days less than first frost)
(80% water—20 days less than first frost)
5) First irrigation (light)
6) Adequate moisture needed from silking to soft dough
7) Limited irrigation until silking and after soft dough
8) Last irrigation at soft dough

Peas

1) Pre-irrigate
2) Plant early
3) First irrigation (light)
4) Irrigate as needed
5) Optimum moisture during bloom stage
6) Last irrigation – at seed set

IRRIGATED

1. Determine best estimate of potential water supply and advisability of reducing area to be cropped.
2. Water requirements of crops (planting to harvest) 60% probability*

	WI (Caldwell)	SCI (Twin Falls)	Upper Snake (Idaho Falls)	EI (Aberdeen)	BL (Preston)
Potatoes	26.2	24.4	21.7	20.7	23.0
Spring Grain	16.9	16.4	16.4	16.7	19.0
Winter Grain	22.5	21.7	20.0	20.7	20.8
Alfalfa	44.0	60.0	35.0	34.0	39.0
Corn	22.6	20.5	17.0	17.2	18.5
Pasture	36.0	33.0	30.0	29.0	32.0
Sugar Beets	28.5	26.3	22.8	21.9	25.0
Beans	18.6	17.7	--	16.4	--
Orchard	24.7	22.2	--	--	--

3. Irrigation water management and water supplies
   a) Surface systems
      1) Alternate crops
      2) Recommended irrigation practices
      3) Other cultural practices

*Consumptive Irrigation Requirements for Crops in Idaho – Sutter and Corey, Bulletin No. 516. Subtract effective precipitation for irrigation requirement. The Blaney Criddle method estimated aflafla and pasture E_t low. Correct E_t by multiplying amount shown in tables by 1.5. All remaining crops are correct.

GENERAL RULES

1. Keep grower shadow in the field – dig-look-judge-respond.
2. Apply light irrigations on surface irrigated fields– use recommended methods.
3. On center pivots, **slow down** machine as much as possible without runoff
4. Use large field streams and push across the field, then turn water off.
5. Plant early
6. Stop irrigation as early as possible.
7. Apply only enough water to meet E_t losses.
8. Consider the use of a sprinkler system, especially for the first irrigation.
9. May wish to use sprinkler the entire season.
10. Reuse water-use catch basin and reuse.
11. Where possible use short season, drought resistant crops.

DRYLAND

1. On dry farmland – with normal spring and summer precipitation
   a) Plant if 3 ½ feet of wet soil
   b) 2 ½ - 3 ¼ is risky
   c) Seed wet soils first – dryer soils last
   d) If less than 2 ½ feet of wet soil – save for following season
   e) Minimum water for spring grain before any yield is 6-7 inches. 5 bu/in after that (6 bu/inch with winter grain

2. Winter wheat – already established
   a) Do not reduce or destroy established stands
   b) Follow normal practices

3. Use normal tillage practice

4. Choice of crops
   a) Spring barley withstands droughts better than spring wheat or oats
      2-row:(Baronesse, Xena, Bancroft, Camas or Hector), 6-row: Brigham, Coulter or Statehood (Oats: Cayuse)
   b) With spring wheat plant Bannock
   c) Reduce seeding rate to 40#/acre of wheat and 50#/acre of barley or oats.

5. Probably no nitrogen should be added
6. If enough water for only one irrigation, fertilize for yield target of 40 bu/ac; two irrigations, 50 bu/ac

Irrigation of Barley in Water-Short Years

1. Conserve water by system maintenance: Eliminate leaks, change worn nozzles, eliminate other places where water can be lost
2. Do not water stress early. Maximum yield potential is established at tillering
3. Fill but do not over-fill soil to a depth of 3 feet in early season when evaporation is less and water is available. Remember, soil is like a sponge – it will only hold so much water. Adding more will move water and nutrients below the crop root zone.
4. Provide minimal to adequate water from tillering to boot (40-50% available water in root zone)
5. If possible, do not water stress from boot through early grain fill (50-60% available water in root zone).
6. **On deep silt loam soils:** irrigation can be stopped with soil profile full at milk with about 20-25% yield penalty or soft dough with no yield penalty. There is no benefit to watering past soft dough.
7. **On sandy or shallow soils:** stop irrigation with full soil profile at soft dough (about 10% penalty) or one or two irrigations more for no yield penalty.
8. **On every irrigation:** fill but do not over-fill crop root zone.
9. **If water is limited:** do not try to meet malt specifications.