TECHNICAL NOTES

U.S. DEPARTMENT OF AGRICULTURE BOISE, IDAHO SOIL CONSERVATION SERVICE

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"FOOD RESERVES STORED IN ROOTS AND LOWER SEEDSTALKS OF BLUEBUNCH WHEATGRASS"1/

"How Grass Makes Food for Growth", explains and illustrates how plant foods are stored in grass roots from which regrowth is made after each removal of part or all of the leaves and stems. The chart does not illustrate how stored food reserves are used to make new growth at the beginning of the next growing season.

The visual aid, "Food Reserves Stored in the Roots and Lower Seedstalks of Bluebunch Wheatgrass", was therefore, designed to show range users when, and up to what growth stage, a grass uses its food reserves for initial growth, and at what growth stage it replenishes them.

Bar graphs are inserted in the roots of each growth stage to show the percentage of reserve polysaccarides remaining in relation to the stage of maximum storage which for Bluebunch Wheatgrass is at the seed ripened, early yellowing stage. The black bar is, therefore, shown at 100% at this stage, and all the black bars inserted in the other growth stages are shown as a percentage of the season's maximum (seed ripened, early yellowing stage).

Fall regrowth during wet years is made from stored food reserves, which is shown by the drastic lowering of the black bar. Just before spring growth began in late March, the food reserves were down to 40% of the season's maximum.

The simple sugars were only 12% of the season's maximum at the seven inch height growth. This was considered to be the most vulnerable stage.

Simple sugars were replenished to some extent during rapid spring growth, but held to about 35% of the season's maximum until flowering and seed formation had finished. The stage of growth during which Bluebunch Wheatgrass rapidly replenishes its food reserves, apparently lies between its seed formation completion and its early yellowing stage.

The chart is used to explain the injurious effects of heavy grazing that starts before range readiness, or even after range readiness, and continues throughout the green or growing season.

1/ By Waldo R. Frandsen, Range Conservationist (West)

It also has proved quite effective in explaining why young plants frequently do not survive even under moderate grazing that extends throughout the growing season; the reason being that the young plants were not protected by carry-over old growth, are succulent to their crowns, and closely grazed whenever discovered by grazing animals.

It also serves as a guide to setting up needed rotated-deferred systems of grazing that are based on plant-growth requirements, rather than by arbitrary dates.

The major lesson taught by the chart is the need for avoiding full growing season grazing on our ranges.

Attachment: "Food Reserves Stored in Roots and Seed Stalks of Bluebunch Wheatgrass." (Visual Aid M-1800-7 7-0-13000-7-L)

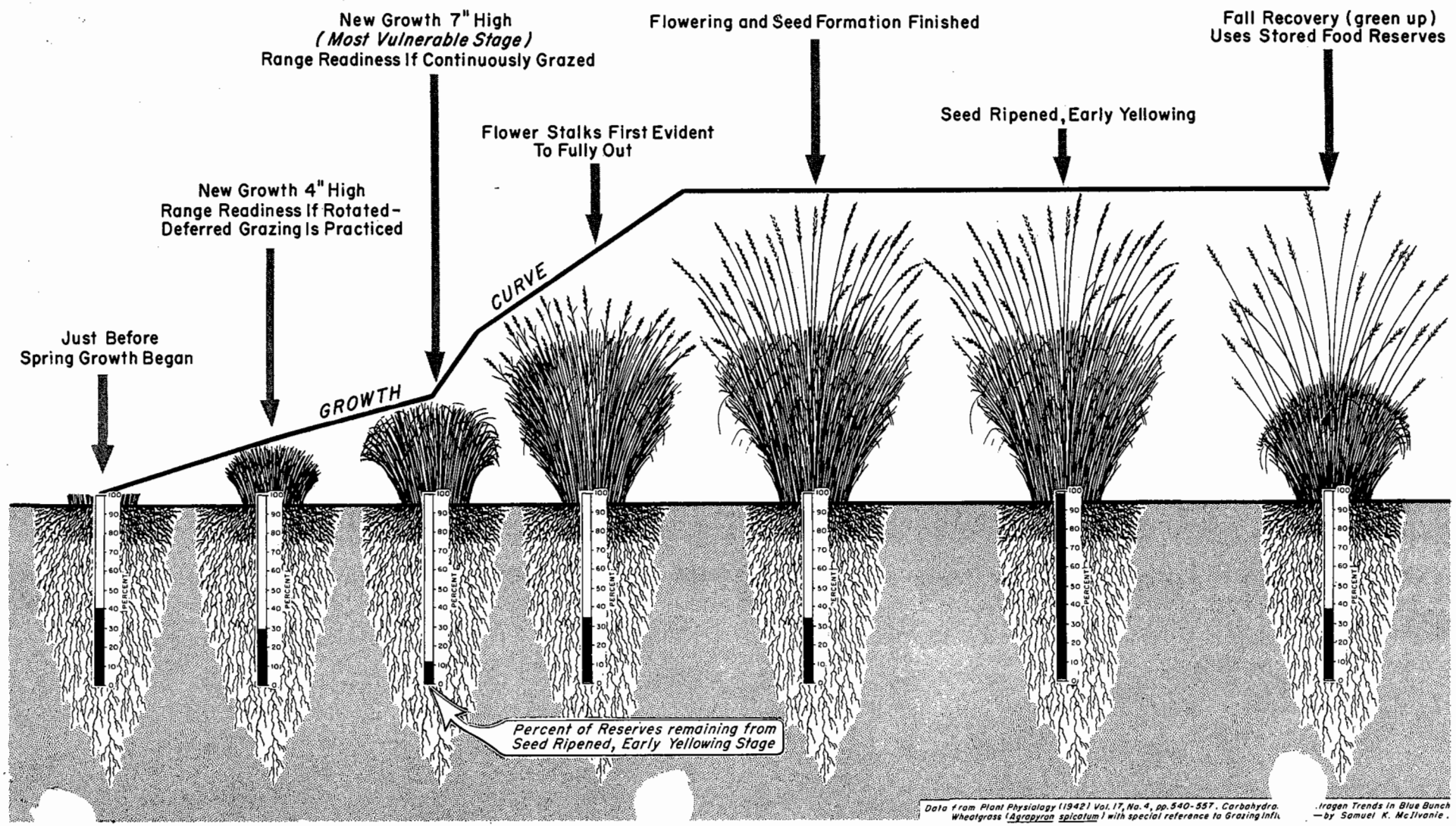
Note: The above visual aid chart is available from the Portland Cartographic Office, and also in the form of a 35 mm. black and white slide for projector showing. This is an excellent tool to be used in "Grass Management" talks in group meetings.

Submitted by:
Roy L. Shipley
Range Conservationist
Soil Conservation Service
Boise, Idaho

M-1800-7 USDA-FCS-PORTLAND, OREG. 1957

FOOD RESERVES STORED *in* ROOTS *and* LOWER SEED STALKS *of* BLUE BUNCH WHEATGRASS

IN RELATION TO GROWTH STAGES AS SHOWN BY RESERVE POLYSACCARIDES (Simple Sugars)



Data from Plant Physiology (1942) Vol. 17, No. 4, pp. 540-557. Carbohydra... ...tragen Trends in Blue Bunch Wheatgrass (*Agropyron spicatum*) with special reference to Grazing Infl... —by Samuel K. McIlvanie.

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