



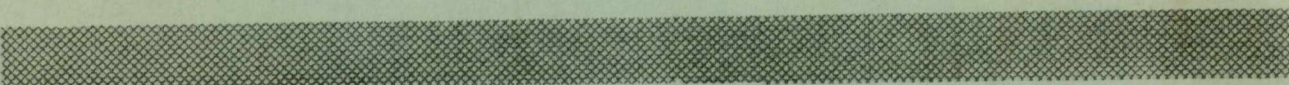
# CASH IN!

ON A NEW LATE-SUMMER FORAGE SOURCE--



## COMMON RYEGRASS

-- SEEDED WITH  
EARLY-HARVESTED OATS & PEAS



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CASH IN ON A NEW LATE-SUMMER FORAGE SOURCE--COMMON RYEGRASS  
SEEDED WITH EARLY-HARVESTED OATS AND PEAS



OATS and PEAS....

Oats and peas grown in mixture provide a valuable and dependable source of high quality roughage on Alaska's dairy farms. This crop mixture thrives and produces excellent yields during our cool, often moist growing seasons. Approximately one-third of the cropland acres in Alaska are planted to oats and peas, most of which is harvested and stored as silage.

Previous research\* in Alaska has demonstrated that mixtures of 35 to 50 pounds of oats and 50 to 65 pounds of peas per acre resulted in maximum forage yield and highest protein content of many different seeding rates compared. Harvest of oats and peas when oats were in the late milk to early dough stage appeared to be the most desirable time to cut from the standpoint of forage yield, protein content, and moisture content.

SOME PROBLEMS....

In order to obtain oat-pea roughage of the highest possible quality, this mixture should be harvested not later than the late-milk-to-early-dough stage of the oat crop. Because of the relatively large acreage of oats and peas on a given farm and the considerable time required for harvest of the entire crop, all of the crop cannot be harvested at the ideal stage of maturity. Moreover, frequent rains during late summer often cause delays in harvesting schedules. Therefore, many dairymen harvest some oat-pea acreage well in advance of the

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\* Hodgson, H. J. Effect of seeding rates and time of harvest on yield and quality of oat-pea forage. *Agronomy Journal* Vol. 48. pp 87-90. 1956.

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milk stage of the oats. It is often noted on these early-harvested fields that a fair regrowth of oat tillers develops to provide a light second crop or an aftermath suitable for limited grazing.

Another forage problem exists during late summer for which a solution appears to be available by following practices described in this report. Milk production in the Experiment Station dairy herd typically suffers a considerable decline during late summer when perennial grasses such as brome grass and timothy have been the main source of forage. The fall-off in milk production has occurred despite the fact that the grasses fed appeared to be of very good quality. Recent chemical analyses indicate that brome grass at the Matanuska Farm accumulates an unusually high content of nitrate during late August. Similar high levels of nitrate in forages elsewhere are known to have a depressing effect on milk production.

Another forage crop problem has been difficult to solve and may be alleviated by adopting cropping procedures described later. This is the need to rest permanent grasses by permitting them to grow without defoliation during the critical late summer period (late August and most of September). During this period permanent grasses must be permitted to retain their leaves intact to manufacture and store food reserves necessary for persistence during the long and rigorous dormant period of winter. Alternate sources of forage are needed during this critical period both to give permanent grasses "a break" and so that stored forages need not be fed.

#### SOME EXPERIMENTAL RESULTS....

Research at the Alaska Agricultural Experiment Station during the years 1959-1962 has shown that a valuable crop of late-summer forage can be obtained by seeding common ryegrass with oats and peas on those acres that will be harvested early. Ryegrass contributes very little extra forage to an oat-pea crop harvested once at the conventional milk-to-dough stage of the oats. Moreover, ryegrass doesn't make much regrowth during the relatively short portion of the growing season that remains following oat-pea-ryegrass harvest at this advanced stage of development of the crop. However, ryegrass regrowth produces a considerable yield of very high quality forage in late summer following an early harvest of oats-peas-ryegrass in mid-July at about the time that oat heads are just beginning to emerge. We have obtained an average of 1 1/2 tons of dry matter per acre from the second crop of ryegrass harvested in mid-September.



Early harvest of the portion of the oat-pea crop planted with ryegrass permits harvest of the total oat-pea crop over a longer period of time and also provides an abundant source of nutritious forage during late summer when perennial pastures (1) are falling off in productivity, (2) do not support high milk production, and (3) SHOULD NOT BE GRAZED OR HARVESTED in order that they may manufacture and store food reserves in their underground parts in preparation for winter. Defoliation of perennial grasses during this period causes them to go into the winter in a weakened condition--the result is either winter injury with poor vigor the next spring or total winterkill.

In contrast to the sharp declines in milk production in late August and September of former years by the Experiment Station dairy herd when supplied with permanent grass forage (bromegrass or timothy), milk production continued high through September of 1962 when ryegrass regrowth was supplied as green-chop in the feedlot. CAUTION: The ryegrass regrowth is very high in moisture content. Some hay or silage should be fed along with the ryegrass forage because of a decided laxative effect on the animals when ryegrass alone is fed.

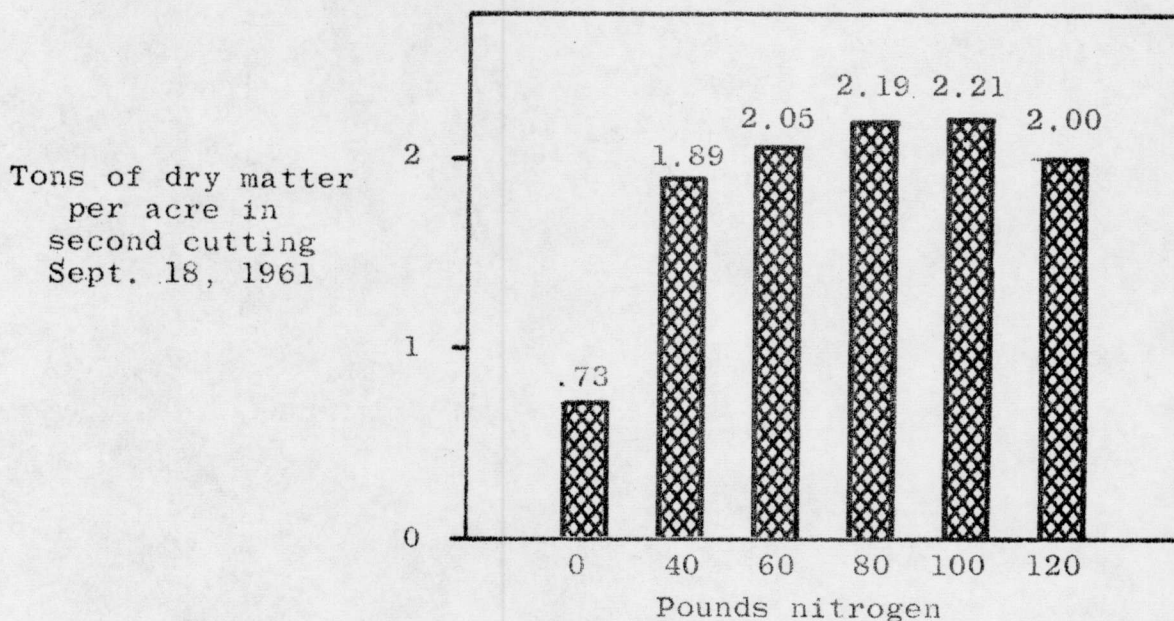
#### TOPDRESSING PAYS....

A light topdressing of nitrogen fertilizer immediately following the early harvest of oats-peas-ryegrass will provide a much needed boost for the ryegrass regrowth. This topdressing can be rather light if an adequate supply of fertilizer was applied at planting time (10-20-10 or 10-20-20 at 300 pounds per acre at planting is usually adequate).

The graph on the following page illustrates the response of ryegrass regrowth as influenced by several rates of nitrogen topdressing compared with no topdressing following early harvest of oats-peas-ryegrass. A 10-20-10 fertilizer had been applied at planting time at the rate of 300 pounds per acre.

These results show a considerable second-growth yield response to 40 pounds of nitrogen as compared to no topdressing. However, at successively higher rates of nitrogen topdressing up to 100 pounds per acre, the forage yields increased only slightly. Thereafter the yield dropped off slightly at the highest rate of topdressing because lodging of the ryegrass prevented total recovery of the forage present.

These results suggest that a topdressing of 40 to 50 pounds of nitrogen (120 to 150 pounds of 33-0-0) per acre is a wise investment, but that little return will be obtained by exceeding that rate of nitrogen application.



Yield of ryegrass regrowth in mid-September as influenced by rate of nitrogen topdressing after early harvest of oats-peas-ryegrass. Crop planted May 23, first harvest and topdressing July 19, 1961. Note that the 40-pound rate (120 lbs of 33-0-0 per acre) resulted in  $2\frac{1}{2}$  times more forage than no topdressing.

#### WHEN PLANTING....

Ryegrass requires a firm, well prepared seedbed for best establishment. Somewhat more care is required to obtain good establishment of ryegrass than is needed with oats and peas. Seed ryegrass at 10 to 15 pounds per acre in the grass attachment on the grain drill or in a packer-type seeder pulled behind the drill. If ryegrass seed is mixed with the oats and peas, do not plant deeper than 2 inches. The small ryegrass seed will not emerge if planted too deep. Pull a packer-roller behind the grain drill. Another method of seeding ryegrass is with a cyclone-type broadcast seeder either before or after drilling in the oats and peas. If seeded before the oats and peas, only packing will be required following oat-pea planting. If ryegrass seed is broadcast on the soil surface after oats and peas are planted, a very light harrowing to cover the seed lightly should precede packing.

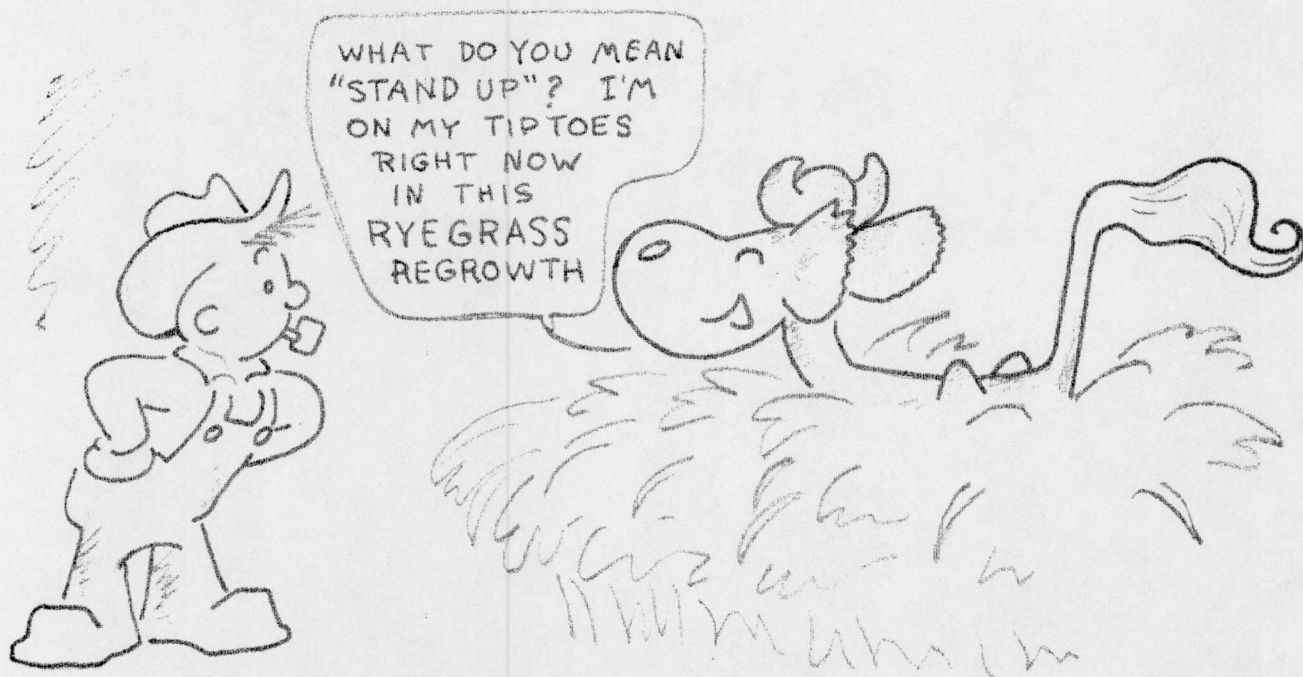


## RYEGRASS CONTRIBUTES....

Ryegrass will head out about the same time as oats. The contribution of ryegrass to the yield of the first cutting of oats-peas-ryegrass (harvested when oat heads are emerging) is very small. Our tests showed that, on a dry-matter basis, oats contributed about 60% of this early harvest, peas made up about 30%, and ryegrass only about 10%. However, ryegrass was the dominant component in the second cutting harvested in mid-September. This regrowth in our trials consisted of about 70% ryegrass and about 25% oats from tiller development. Pea regrowth from buds on the peavine stubble contributed only about 5% of the second crop. Few or no ryegrass heads appear in the very leafy regrowth. The amount of oat regrowth is dependent upon the exact stage of development of the oat plants when the first cutting is made.

Oats-peas-ryegrass harvested when oat heads are emerging will contain a somewhat higher moisture content (80 to 85%) than oats and peas harvested at the later, conventional stage of development. Accordingly, adequate wilting of this early cutting to bring the forage to the desirable moisture content (60 to 70%) is important if the crop is to be ensiled.

Ryegrass seed is relatively inexpensive and so very little additional expenditure is required to include this grass with oat-pea plantings. Ryegrass thrives during the cool weather of late summer and can often be utilized into October before a killing frost occurs. The ryegrass regrowth will be quite high in moisture content. Because weather conditions in late summer are very poor for drying, the crop cannot be cured for hay. It is also difficult to wilt the crop sufficiently for ensiling. The crop is best utilized as green-chop for the feedlot or strip grazed.



## IN SUMMARY....

Some oat-pea acreage is normally harvested earlier than ideal in order to complete the harvest of the total oat-pea acreage before the crop becomes too mature for good quality. These early-harvested acres won't return as much yield as oats and peas cut later and the regrowth of oats and peas is quite sparse. Seed common ryegrass at 10 to 15 pounds per acre in the acres to be harvested early. A light topdressing of nitrogen (120 to 150 pounds 33-0-0 per acre) following harvest of oats-peas-ryegrass at very early heading stage for oats will result in:

- \* a considerable crop of ryegrass and oat-tiller regrowth for high quality late summer pasture or green-chop forage or....
- \* a regrowth which with the first-cutting will total almost as much dry matter as oats and peas harvested once at conventional stage of development. This permits early harvest of some oat-pea acreage with little sacrifice in total yield from those acres.
- \* more efficient utilization of scarce cropland acres and the short growing seasons in Alaska.
- \* an alternate source of valuable late summer and fall pasture or green-chop to allow permanent grasses such as brome and timothy to go unharvested during late August and September to permit them to store much needed food reserves for winter survival.
- \* better weed control than once-harvested oats and peas. Many serious annual weeds such as lambs-quarters, wild mustard, and chickweed can produce mature seed before oats and peas reach the stage for conventional harvest. Harvesting early removes these weeds before their seeds can mature. Most annual weeds harvested at this early stage will not recover. Also, the rapid regrowth of ryegrass following light topdressing with nitrogen is too competitive for any weed regrowth to make much of a showing.

Including common ryegrass with oats and peas to be harvested at the conventional late-milk to early-dough stage of oats is a poor practice because the ryegrass will make no worthwhile contribution to the forage yield and there is too little time following this late harvest for ryegrass to recover and produce a worthwhile yield of regrowth.



## GETTING ACQUAINTED WITH *Ryegrass*

"Common ryegrass" is the grass described in this report. "Common ryegrass" on a sack label refers to a seed mixture which ordinarily contains 80 to 90% annual (or Italian) ryegrass and 10 to 20% perennial (or English) ryegrass. Most seed of the ryegrasses is produced in the Pacific-northwest states.

Annual or Italian ryegrass (*Lolium multiflorum*) is much more valuable than the perennial or English ryegrass (*Lolium perenne*) for the purposes described in this report. Annual ryegrass, which is the major constituent in "common" ryegrass, grows faster and supplies more forage on an annual basis than perennial ryegrass.

Perennial ryegrass functions as a perennial only in areas where winters are not severe. It is not sufficiently winterhardy to survive Alaska's winters except in areas such as Southeastern Alaska, Kodiak Island, and portions of the Kenai Peninsula where winters are relatively mild.

Because of its name, ryegrass is often confused with common rye (*Secale cereale*). However, ryegrass is a forage grass and rye is a small grain. Rye is sometimes used as a forage crop, also.

Heads of ryegrass resemble quackgrass somewhat except that ryegrass heads are much longer and the individual seed clusters (spikelets) are much farther apart on the heads of ryegrass. Leaves of ryegrass are shiny like red fescue, while leaves of other common Alaskan grasses such as quackgrass, bromegrass, Kentucky bluegrass, meadow foxtail and timothy are not shiny.

