

WAIT FOR IT: BE PATIENT & PRUDENT WHEN PLANTING ALFALFA

Robin Newell, Alfalfa Product Marketing Director, S&W Seed Company

A good friend and alfalfa breeder with nearly forty years of experience recently told me:

“Soils in the Upper Midwest are saturated from pre-winter rains. Much of the area, including the Northern Plains, was covered by snow well into March this year. Couple that with significant new snowfall and precipitation in mid-March, and many folks are wondering if this spring will be a repeat of last year’s prolonged wet spring season. Anyone who is in a hurry to plant alfalfa this spring should be patient; chill out and wait for better soil conditions to plant and establish new fields.”

Snowpack throughout the Upper Midwest and Northern Plains states was highly variable over the past winter. But one thing most farms have in common across those geographies as spring season presents itself? Very wet soil conditions.

Farmers become increasingly anxious to plant corn as spring unfolds, and it can be tempting to plant corn into wet soil under the specter of late fall harvest and the potential problems it presents. However, when planting alfalfa, it’s important to remember this perennial crop is being planted for its yield potential across several years. Successful alfalfa establishment can be done anytime from early spring through mid- to late August. From an agronomic standpoint, advancing calendar date matters a lot for corn planting. But you have added time for sorghum species and ample time for alfalfa plantings.

There’s not much benefit to planting any crop in soil conditions that are too wet. Planting in wet conditions leaves soils compacted, can leave ruts in wet areas of fields, and often results in spotty stand establishment that soon leads to competition from weeds. Wait to perform tillage for seedbed preparation until after soils have had sufficient drainage and evaporative loss to be below field capacity at a good depth. Tile drains should not be running when you are tilling soils or planting crops! Compacted soils lack the soil porosity needed for soil air exchange, and the decrease in porosity results in a reduction of soil water-holding capacity as well. Compaction impedes drainage, making soils prone to run-off and waterlogging. Maintaining sufficient soil porosity, even in the subsoil, is important for internal soil drainage and deep root growth to access subsoil water-holding capacity later in the season as plant water use requirements increase.

Tillage preparation and planting alfalfa in wet conditions that cause soil compaction will likely reduce seedling emergence. Compaction leading to waterlogging can cause seedling loss due to root rot pathogens. These effects are detrimental to soil ecology and root health; even mild compaction can affect soil nutrient uptake and plant health. All these factors should be strong deterrents against premature soil preparation and planting of alfalfa in wet soils.

In alfalfa, compacted soils can lead to Phytophthora and Aphanomyces root rots when subsequent rains create waterlogged conditions even for short periods of time. Seedling plants grown from seed treated with fungicides can get some early protection from these diseases, but longer-term stand health will be compromised by these pathogens in soils that undergo periods of waterlogging. Select an alfalfa variety with high resistance ratings for these disease organisms if you anticipate any periods of waterlogging over the expected stand life.

Planting no-till alfalfa has its own set of challenges and rewards. The mulch surface layer typical in no-till and minimum-tillage fields means that soils are slower to warm up. The internal soil structure improvements over time in no-till can lead to improved internal drainage and porosity in most soil types. If you no-till, you don’t want to disturb your well-earned soil structure by driving on wet soils and causing compaction, so the same principles apply as with tillage for seedbed preparation and planting.

The key in no-till is to be sure to get seed into the soil at the proper depth, with good furrow closure and press wheel adjustment for firm seed-to-soil contact. Your drill must be able to cut through surface trash so seed is not just lying in crop residue, which can dry out before seedlings germinate and obtain root penetration into moist soil. In wet soils or wet areas of fields, be aware that disk furrow openers may create slick compacted furrow walls that impede early root penetration and are liable to open up and dry out before seedling root establishment.

The reward of no-till is that once you have seed well-placed in soil, the crop residue mulch layer tends to maintain enough surface moisture at seeding depth for good stand establishment – even if weather turns dry during the establishment phase.

Following key agronomic management principles and practices can make a big difference toward achieving successful alfalfa stand establishment.

Regardless of your tillage methods, early germination and seedling growth of small-seeded legume species are dependent on three main factors:

1. Seed placement at ¼ to ½ inch depth in most ag soils.
2. Good seed-to-soil contact in a firm seedbed with few or no clods larger than ¼ inch.
3. Adequate soil moisture for germination and young seedling growth.

Weed control should also receive strong consideration in your alfalfa establishment decisions. But weed control decisions involve multiple and diverging paths to successful stand establishment. Young alfalfa seedlings can be slower growing than many grasses and broadleaf weed species. Several registered herbicides offer a first line of defense in alfalfa establishment weed control. Glyphosate-resistant varieties are an enticing option, but can be pricey and may not be stand-alone if you have to worry about glyphosate-resistant weed biotypes. Given all the lessons of herbicide rotation and weed resistance management principles that have become so important in recent years, the other herbicides registered for weed control in seedling alfalfa deserve consideration (see table, below).

Using oats as a nurse crop also remains a viable choice for alfalfa stand establishment. Oats work well because the upright architecture of the oat plant lets enough light into the canopy to allow alfalfa to grow and develop taproots while also keeping weedy species in check. By the time the oat crop is harvested (along with smaller alfalfa and weedy plants), alfalfa is established well enough to out-compete most weedy species in the aftermath of oat harvest. Of course, all bets are off if oats are planted too thick – especially if the oats lodge and smother out alfalfa. Therefore, if using the tried and true nurse crop method, keep the oats planting rate on the low side and plan to harvest as a forage crop rather than as a grain crop.

Regardless of the weed control method you choose for early alfalfa stand establishment, alfalfa plants develop tap roots around 60 days post-emergence. With tap root development, the recovery rate of established alfalfa plants following clipping is faster than re-growth of annual weed species. Once establishment is complete, a good stand of alfalfa smothers emerging weed seedlings. Any perennial weeds that persist in a young established alfalfa stand will have difficulty surviving the abuse of multiple cuttings per year, especially on a dairy-quality hay cutting schedule.

Patience and prudence at planting time can help achieve successful stand establishment and set the stage for good yield results in the next few years of alfalfa crop harvest!

The following table provides a list of herbicides labeled for use on alfalfa in most states but does not constitute a recommendation. Your herbicide-use decisions and applications must be made according to full and complete herbicide manufacturer label information, plus supplemental labels for certain uses and states.

TABLE OF HERBICIDES FOR USE IN ALFALFA

(Read and follow label directions, including alfalfa growth stage, not shown in table.)

Timing	Herbicides	Weed Growth Stage	Weeds Controlled	Considerations
Pre-plant burndown, At-plant burndown	Gramoxone Inteon®	Actively growing weeds and grasses	Non-selective broad spectrum	70-day harvest restriction, only one application per season, with varying regional restrictions
Pre-plant burndown, At-plant burndown	Roundup®	Actively growing weeds and grasses	Non-selective broad spectrum	Application must be made prior to crop emergence
Pre-plant Incorporated	Balan™ Eptam®	Germinating broadleaf seeds and emerging seedlings	Broad-spectrum broadleaf control	Soil incorporation or chemigation needed to distribute herbicide in top few inches of soil
Early Postemergence	Buctril®	Broad-spectrum broadleaf control of small weeds up to 2 inches tall	Broad-spectrum broadleaf control	Temperatures over 70 degrees F within 3 days of application can cause crop burn, 30- to 60-day harvest restriction
Postemergence	Butyrac®	Small broadleaf control, with suppression of some larger broadleaves	Broad-spectrum broadleaf control	30-day harvest restriction for established alfalfa, 60-day harvest restriction for seedling alfalfa, can be tank-mixed with Buctril® or Poast® for additional broadleaf and grass control

Timing	Herbicides	Weed Growth Stage	Weeds Controlled	Considerations
Postemergence	Poast®	Actively growing grasses, tallest height controlled varies by grass species, generally 8 inches	Annual and perennial grasses	Harvest restriction 7 days before grazing, 14 days before cutting for hay/haylage, best control before mowing grasses
Early Postemergence and Established stands	Pursuit® Raptor®	Emerged weeds up to 3 inches for most species	Broad-spectrum broadleaf and grass suppression, with control of many broadleaves	30-day harvest restriction
Early Postemergence and Established stands	Warrant® (supplemental label for alfalfa)	Germinating weed and grass seeds	Most annual grasses and broadleaf weeds as they germinate	Up to or at the 4 th trifoliate stage of emerged stands, or no later than 7 days after cutting established alfalfa
Early Postemergence and Established stands	Prowl® H2O	Germinating weed and grass seeds	Most annual grasses and broadleaf weeds as they germinate	Do not apply to alfalfa before 2 nd trifoliate stage. Will not control emerged broadleaf and grass seedlings
Postemergence and Established stands	Select Max® Section®	Actively growing grasses, generally 2-6 inches in height	Annual and perennial grasses	Harvest restriction 15 days, best control before mowing grasses
Postemergence, only for varieties with Genuity® Roundup Ready® technology	Roundup PowerMAX® or WeatherMAX®	Actively growing weeds and grasses	Broad spectrum of annual and perennial broadleaves and grasses	Do not apply within 5 days of harvest, aim for first application at 3- to 4-trifoliate leaf stage for best early weed control and null plant take-out, no rotational restrictions
Postemergence, Established stands only, not greater than 6" crop height	Chateau®	Emerged seedlings not exceeding 1-3 inches in height	Broadleaf and some annual grass control, including cheatgrass	25-day harvest restriction, up to 12-month rotation interval
Fall and Early Winter Postemergence in established alfalfa, or late-summer seedings after 1 st trifoliate stage.	Kerb®	Controls germinating seeds and emerging seedlings	Annual and perennial grasses, including cheatgrass	25- to 45-day harvest restriction, apply during cool temperatures above freezing, up to 55-60 degrees F
Dormant Application in established stands	Eptam® 7E Treflan® 4EC	Germinating broadleaf seeds and emerging seedlings	Broad-spectrum broadleaf control	14- to 21-day harvest restrictions, chemigation needed to carry herbicide into top few inches of soil
Dormant Application in established stands	Velpar® AlfaMax™ Gold	Pre-emergence and early growth up to 2 inches in height or diameter	Non-selective broad spectrum	12-month minimum rotation interval to corn and root crops, 24 months for most other crops
Dormant Application in established stands	Sinbar®	Pre-emergence and early growth up to 2 inches in height or diameter	Seedling annual weeds	24-month rotation interval
Dormant Application	Roundup Original MAX® or PowerMAX®	Apply to actively growing weeds	Control or suppress many weeds including quackgrass, downy brome, and cheatgrass	Supplemental labels refer to a training requirement, 36-hour grazing restriction