Pasture Improvement Plan

Rebooting a Pasture

It's time to return to our roots and design pastures that are in harmony with nature. Restoring a pasture takes time though – so be patient. In many places, over the last 50 years, pastures have been over-tilled, treated with chemicals and synthetic fertilizers, and replanted with single species of plants. This mono-cropping method depletes the soil of nutrients, but also takes time to "reverse". It can take several years to see noted pasture improvement on a new site, but the hard work will pay off and provide perennial forage and grazing materials for healthier livestock.

A. To begin the process, consider low-mowing the space and then spraying with a fungal dominated spray (like a mushroom compost tea or Super Stuff available on Amazon). This will help "eat up" chemical residue, left over salt from synthetic fertilizers, etc. This spray can be applied manually or via an injector in the watering system. Wait for a few weeks to let the mycorrhizal fungi do their job.
B. Next, use an agricultural probiotic spray, like BioAG from SCD Probiotics. This will help reinoculated the soil and plants with a healthy microbiome. This will increase both soil and plant health. A link for BioAg can be found under the "Products" tab at PeracultureFX.com. This can be reapplied every other month on the pasture, fruit trees, or berry bushes as needed. Wait for two weeks before disking.
C. Low till / disk the pasture
D. Replant with desire seed mixture.

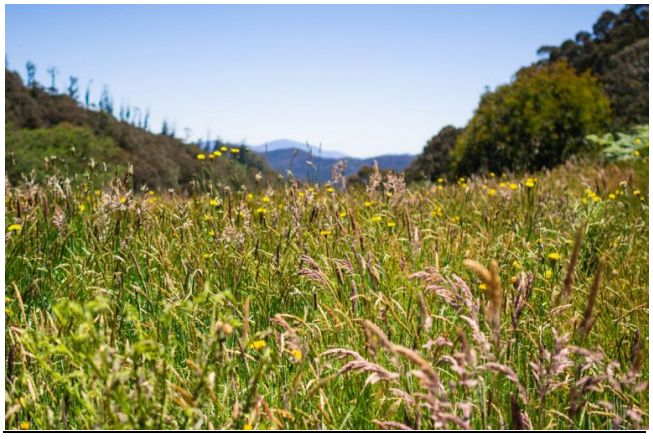
Part 1: Reseeding Your Pasture

Goals

1. To provide a biodiverse, season crop rotation that can be interplanted or plot seeded in order to maintain and build pasture health.
    - NOTE: In turn, this will lessen the need for purchased inputs on the system and allow the manager to be more hands off with feeding.
2. To integrate nitrogen fixing legumes (Fabaceae or Leguminosae) that also serve as a protein source for livestock.
3. To provide a yearly planting calendar with approximate lbs per acre.
    - NOTE: The pounds of seed per acre are if you were seeding 85% or more of the acreage. The ideal scenario is to “strip or row plant” them to the width of a disk mount. By plowing a few strips per acre and rotating the tilling direction each year, you are ensuring adequate crop rotation and biodiversity with the perennial grasses and legumes.
4. To reduce feed cost (both long and short term) by providing adequate forage and silage.
5. To increase the overall health of the cows by providing a more nutrient dense and protein rich diet.

Option A: Horse Pasture

This type of pasture will be mainly for horses, pony, and donkey, since they prefer grazing on diverse species of grasses. As a general rule, pastures should be rotated frequently. Never let the plant material get eaten all the way down. Keep in mind, that even horses like a little diversity in their diet, so consider adding in one or two rows of other mixes and/or wildflowers to offer some additional nutrients.



PLANTING STEPS

1. Have a tractor till, disk, and reseed this location.
2. Reseed using your preferred seed mix every spring and fall.
3. Do a "low drag" to work the seed into the soil about 1/8 – ¼ inch.
4. Low till once or twice a year using the crosshatching method. Till a row (tractor width), skip a row or two), till another row, skip a row or two. Then in the next season, go the other direction (crosshatching) using the same plant – skip – plant – skip method. This maximizes biodiversity and minimizes tilling the soil. Keep in mind that tilling not only disrupts carbon, but also interrupts the microbiome of the pasture, so till as LITTLE as possible.
5. Water as needed (likely daily) until the plants have their second set of leaves.

SEED OPTIONS

Horses Pasture: https://hancockseed.com/products/horse-pasture-grass-seed-mix-central-climate-mix

Horses Pasture: https://hancockseed.com/collections/hancocks-signature-mixes-forage-pasture-seed/products/horse-pasture-grass-seed-mix-warm-climate

Additions: You can also add in other single species to these mixes like clover, Timothy grass, Augustine, etc.

Option B: Livestock Pasture

This type of pasture will be mainly for animals with rumens or stronger stomachs, like goats and cattle. They do well with a larger biodiversity, so consider mixes with more beans, peas, legumes, sunn hemp. As with other types of pastures, rotate OFTEN, never let a pasture get eaten all the way down, and plant as many species as you possibly can.

PLANTING STEPS

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4. Low till once or twice a year using the crosshatching method. Till a row (tractor width), skip a row or two), till another row, skip a row or two. Then in the next season, go the other direction (crosshatching) using the same plant – skip – plant – skip method. This maximizes biodiversity and minimizes tilling the soil. Keep in mind that tilling not only disrupts carbon, but also interrupts the microbiome of the pasture, so till as LITTLE as possible.
5. Water as needed (likely daily) until the plants have their second set of leaves.

Goat / Cattle Spring Seeding: https://hancockseed.com/collections/hancocks-signature-mixes-forage-pasture-seed/products/hancock-s-dixieland-food-plot-mix

Goat / Cattle Fall Seeding: https://hancockseed.com/collections/hancocks-signature-mixes-forage-pasture-seed/products/hancocks-southeast-cattle-forage-fall-winter-seed-mix

Note: Many of the cattle mixes are also safe for horses as well. Just check with the seed company regarding the ingredients, as they can vary year to year.

Option C: Wildlife and Wild Game Pasture

This type of pasture will be mainly for wildlife (deer, quail, turkey, etc.) and could also be harvested as "hay" once or twice per year. Functionally, it serves as a wildlife habitat and buffer zone outside of a food forest or garden area. This gives wildlife a "safe zone" that will often discourage them from moving into the more active areas. Secondarily, because it can be "hayed" or grazed green, it's an easy way to make use of a larger area (while still providing forage for livestock). This is an excellent option if you are "resting" a pasture for a year.

PLANTING STEPS

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4. Low till once or twice a year using the crosshatching method. Till a row (tractor width), skip a row or two), till another row, skip a row or two. Then in the next season, go the other direction (crosshatching) using the same plant – skip – plant – skip method. This maximizes biodiversity and minimizes tilling the soil. Keep in mind that tilling not only disrupts carbon, but also interrupts the microbiome of the pasture, so till as LITTLE as possible.
5. Water as needed (likely daily) until the plants have their second set of leaves.
6. OPTIONAL: If you have a growing season (May – August) to spare, consider planting the pasture with sunn hemp and tilling it into the ground just before it flowers in August. Then wait for 3-4 weeks before tilling again for fall seeding.

SEED OPTIONS

Pollinators: https://hancockseed.com/collections/bee-seed-for-homestead-animal-garden/products/tough-12-wildflower-seed-mix

Turkey and Quail: https://hancockseed.com/collections/native-grass-seeds/products/hancocks-southeast-native-quail-mix

Option D:
Individual Seeding Options

Under some special circumstances you may wish to only reseed using one or two varieties of plants. Here are general planting times and information on individual seed types.

SPECIES	**TIME**	**# SEED PER ACRE**	**NOTES**
Alfalfa	October (end) / November (first)	12	Provides calcium, vitamins, and highly digestible nutrients. Best dried for cattle in larger quantities.
Austrian Winter Pea	October	60	Hay, silage, grazing, and adds nitrogen to the soil. Can be tilled in.
Bermudagrass	Feb / March	12	Warm-season perennial, highly nutritious (cows can meet their nutrient needs easy)
Black Oats	November (first)	40	Helps with digestion and nutrient absorption. Likes nitrogen rich soil.
Cassava	March	n/a	Planted per root or plant for foraging
Clovers	October	4	Helps weight gain in calves and lessens the time between birthing and rebreeding. Gives nitrogen to the soil, provides pollination sources.
Lespedeza	February (end)	6	Drought tolerant, does not cause bloat, soil repair and nitrogen fixing.
Lupine	October	40*	This number is calculated based on use for weed suppression. Our purposes would be for diversity and soil repair. Can also be used like buckwheat as a smother crop.
Millet	February (end)	20	Filler feed for summer months to provide calories. Prevents

			overgrazing of other grasses when cattle are left to long on one plot.
Oats	October	80	High hull and fiber content. Easiest to digest and most appealing for calves and yearlings.
Perennial Peanut (rizoma)	March	$200 per acre of rhizome (Not measured via lbs)	Protein and energy supplement as a forage, especially in areas where pasture is lower quality. Will provide forage and repair soil (N).
Rough Pea (Lathyrus hirsutus)	November (end) / December (first week)	80-100	High quality protein (especially for beef cows), helps maintain a healthy gut microflora. High quality digestible fiber.
Timothy Grass	March or August	2-4 lbs per acre when intermixing or 4-6lbs when planting alone	High fiber and energy content, low protein, easy to grow. Drought tolerant and low moisture content
Tobacco	March	60' of greenhouse space to get enough plants for a full acre	Generally transplanted. Nutritious forage and pollinator.
Vetch	October	30 (or 50lbs of rye with 15lbs of vetch)	Good for hay and silage, prevents erosion on banks and ditches. Repairs nitrogen. Pollination source. It is a vine, so is best planted with rye to give something to climb on.
Winter Rye	November (first)	55	Extends normal growing season, gives fresh forage into winter months, high energy source. Grows in a wide range of soil conditions.
Winter Wheat	November	75	High protein content (110% more protein and energy than corn), best blended with other grains for easier digestibility.

Part 2: Support Species for Pasture Edges

Goals

1. To provide easy chop and drop species that is selectively available to cattle or for human harvesting.
2. To provide pollination sources to attract bees, predatory wasps and butterflies, which help control larvae of species (like inch worm) that destroy pasture grasses.
3. To provide native cover and food source for wild birds to help control pasture pests.
4. To provide visual barriers in appropriate areas.

SPECIES	**BENEFIT**	**NOTES**
Bamboo	High silica and mineral content	Helps build collagen and the absorption of minerals. High density nutrients and minerals for cattle, goats, horses, etc.
Pigeon Pea	Forage material, pollinator, nitrogen fixing plant for improved pasture health.	Best planted up slope and away from waterways. Short term species 4-8 year lifespan
Moringa	High density forage material, easy chop and drop support species, pollination source. Highest level of protein and amino acids.	Keep pruned so weaker branches do not break and fall on fencing. Can be added to feed like “cattle salad”.
Napier Grass	High protein, excellent forage, fast growing.	Cut back when stems get larger (use for composting or burn pile). Livestock will not eat thick or tall canes.
Mexican Sunflower	Repairs nitrogen in the soil, is a high-density nutrient for cattle and livestock. Includes protein and minerals.	Can be chopped and dropped OR leaves cut and added to their existing feed. It can take an introduction period to get the cattle used to the new species.
Wild flower mix	Pollination sources for pasture health (pollinates clovers and legumes for increased soil fertility upon flowering)	Plant species that attract braconid wasps in order to control pasture pests.
Comfrey	Mineral rich food source (calcium, magnesium, manganese, selenium). Lessens or alleviates the need for mineral blocks and supplementation.	Can be fed fresh or dried. Can also be used topically for wounds on cattle.

Mulberry	High vitamin C and antioxidants, suitable forage.	Leaves, small stems, and berries can be used for animal fodder and forage. Edible and medicinal for humans as well.

Part 3: Support Species for Cattle Lanes

Goals

1. To provide species that the cattle are brushing against while in transit for de-flying and pest control.
2. Pollination sources.
3. Chop and drop to place within pasture or in wonder areas.
4. NOTE: NOT suitable for horses.

SPECIES	**BENEFIT**	**NOTES**
Sugar Cane	Uses as a finishing feed for beef cattle. High density nutrients, and regrowth speed. It is easy to chop and drop as well.	Grows easily in a variety of so types and can tolerate poor quality soil area.
Lemongrass	Manipulates the digestion process and improves nutrient utilization, thereby reducing methane formation. Specifically, lemongrass contains bioactive compounds with antimicrobial and antiprotozoal properties which can be used to modify rumen fermentation. Also releases oils upon contact (when changing pastures) that will help de-fly cattle, like walking through a shoot.	Should not allow livestock to have continual access. Too high of an essential oil content. Best kept in bridal lanes where livestock can brush against it and eat only in very small quantities.
Reeds	Absorbs moisture near watering stations. Provides cover for dragonflies, which help control fly and mosquito population.	Should be planted in a “cage in” area around the sides and back of watering stations.

Support Species in Wonder Blocks

Goals

1. To provide larger open spaces with planted edges for cattle management
2. To give sitting and rest areas for observation
3. To provide hubs for native pollinators and birds, which both naturally help support pasture health and insect control.

SPECIES	**BENEFIT**	**NOTES**
Neem	Can be fed to sheep, goats, and cattle to improve overall performance and help boost their immune systems. Helps with livestock who have digestive problems or bloat. Strong antiseptic properties, so a spray can be made to help repel flies and treat small cuts, scrapes, bruises, or warts. Drops of the oil can also be added to sweet feed.	Hardy in USDA Zones 9-11
Yarrow	When mixed into their feed (fresh or dried) can help with wound healing and respiratory health. Especially beneficial for upper respiratory conditions. Cattle and horses will eat the flower head when it's available at pasture, but will generally "self-medicate" as needed.	Because the plant has such powerful volatile oils, animals will generally leave it alone until their body needs it.
Spanish Needle	This plant is foraged as excellent animal fodder for all livestock. Chickens will devour the leaves and eat the insects in the roots up plants you have pulled up. Goats, sheep, cattle, and horses will eat it while out on pasture. The medicinal qualities are as applicable to livestock as they are to humans. This is an excellent plant to feed your animals before heading into winter.	Grows native here, but should be left and never mowed over.
Comfrey	Mineral rich food source (calcium, magnesium, manganese, selenium). Lessens or alleviates the need for mineral blocks and supplementation.	Can be fed fresh or dried. Can also be used topically for wounds on cattle. Look for the Bocking-14 variety of comfrey. Does best with some shade protection in the heat of the day.