

## Grazing Cover Crops as a Cash Crop

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Before cover crops were a crackpot, if medieval science, as in the past 30 years, they were essential to a predictable food supply. The English “Ley” system let Britannia to rule the oceans, rather than grub for morsels of food. Ireland’s misery was an orchestrated economic tragedy of absentee rents and monocultures. The enclosures and Highland clearances were a reverse land reform to remove the small farmer. It was “get big or get out”, circa 1800s. Still, today; we are but blight away from Malthus who claimed checks on human population were not enough to outgrow the food supply. His premise was our urge to procreate increased the population exponentially. We could only increase the food production arithmetically; at some point we’d all starve.

The Lewis and Clark expedition was rumored as a search for land to grow cotton. Planters used slash and burn agriculture. Blocks of forest—trees were always on the best soils--were cleared, burned, tilled and planted to cotton or tobacco. When exhausted it was time to move on.

The Ley system emerged where herding, cropping and the soil to support it converged with a desire for a sedentary life. This intricate system of manure ---green, brown and black---, Peruvian guano, bones from the battlefields of Europe, rest and renewal beat back the Malthusian nightmare. Nitrogen was always the limiter; Chilean nitrate salts replaced organic N in the early 1900s. Population growth required a more abundant nitrogen source. Haber and Bosch changed it all in 1913. Modern Agriculture---- the post WWII kind--- by passed soil mineralization processes with acidulated, plant available NPK. Now, the crop could be fed THAT YEAR, not over a long rest and recuperation period. TIME was eliminated as a function of production. Ironically, so were livestock. Crop genetics responded in kind. The rationale was to reduce the system to simple components. Efficiencies led to higher production, then over production, then get big or get out. When crop production lost its dependence on organic sources of nutrients Animal Husbandry, just another complex variable, was removed from the system.

As meat production separated from crop production manure became a liability, rather than an asset. Reductionism is our construct. Biology, life, tends towards a complex, diverse, therefore stable, form. Remember? Agriculture was a war against want, if not extinction, a war of sedentary versus migratory. Malthus was beat, for the time being.

We now enter a new age of comprehensive Agriculture. Farm Bill approved or not, recombining biological essentials of soil health, once again, with animal husbandry makes sense. This is not a new age wishful wishing idea, but one of profitability. When you look at total costs of production some form of pastoral farming is profitable. Many Organic ---by this I do mean Certified Organic--- production systems are used on conventional farms. What we know now is topsoil grows back.

The livestock business is entering into a similar paradigm. A generation of research was built around feeds and the feeding of livestock in simplified, confined scenarios. Some, ever vigilant in cutting out the middleman, are eliminating trucking of feed. The most direct link to the sun, our health and prosperity is through the photosynthetic processes of energy production, via ruminant grazing. While we poured our resources into the DISINTEGRATION of Agriculture, an intergrated Pastoral Farming system, born in England, was refined in the

southern hemisphere.

Let's digress to the Enclosures of Ireland and Clearances of Scotland. A new farming "system" replaced the drovers, crofters and the tragedy of the commons. Transmigration to abundant lands in North America and the Southern Hemisphere saw tremendous growth in cattle and sheep numbers. The English system morphed with the stock and constituent husbandry. The Runs, Stations and Estancias, essentially commons grazing, evolved to sophisticated multi-use enterprises meant to hold the soil.

This system was more extensive than the English system. Drier summers and milder winters required new modes of sustaining stock. Labor intensive winter fodder crops common in England, such as turnips, rutabagas and Kale were bred into multiple grazing tap rooted selections. Winter active cereals and grasses emerged including cover crops as a CASH CROP. It was drought, not so much privations of winter one prepared for. Either way, through grass pasture or crops, an integrated system using livestock maximized sunlight and profitability. The system grew from simply dodging the Malthusian bullet to prosperity. Some of the highest living standards were found in the pastoral regions of Argentina, the Plains States and Australasia.

New Zealand research focused on correcting the soil to sustain a high level of production from both crops and stock. Lime, rock phosphate, and the micronutrients to go with it were subsidized; your stocking rate determined the size of your check. Pasture productivity, not its longevity, drove the system. Break crops--- cover crops--- were planted to fill gaps in feed production AND to exploit the soil mineralization inherent in a vigorous biologically complex plant community.

So, here, where is the money in a Cover crop? One place is crop density translated to higher production per acre. A mineralized plant is heavier, and healthier. A nutrient dense plant is easily harvested and digested. Cover crops as part of a rotation---nothing new here--- enhance the soils ability to feed the plant. Crop production integrated with livestock production replenishes nutrient and water pathways. GRASS is the most efficient method of improving crop health and production. Time is all it takes.

Brassicas, as defined in grazing varieties, need less time to do more. Using certified varieties of Brassicas, which are vigorous, fast growing, tap rooted plants, produce high amounts of above and below ground biomass. Brassicas have, as another aspect, a mysterious soil conditioning component; they were used for years as a pioneer plant to break up ground after plowing.

PGGSeeds is an Australian company which breeds, produces and markets proprietary Brassicas for sale throughout the world. The signature of our plant breeding is a, multiple grazing, vegetative plant. This plant material is bred for animal preference and optimum performance, first. They are certified as such. You get a genetically stable variety, every time, as required by law. Joining livestock and crops reduces risk. If you don't like the crop, graze it. You want crops specifically bred for extended forage production to capitalize on regrowth. It is not difficult today to calculate cost of gain from feeding or grazing, and have it come out in favor of grazing. Most U.S. research in livestock grazing tends towards extending the longevity of the sward, not its profitability. Most "Pasture" is generic. Are your bulls, or your soybeans? Another aspect of grazing in the Western U.S. in particular is grass, inherently is free. It's always there; if it isn't you call a truck. Now, not only is the truck expensive, the ownership of stock and feed is as well. Applying commonsense soil biology with plant material that capitalizes on animal performance and soil health is an inherently profitable system.

Make a Cover Crop a Cash Crop.