



**This article was written for publication in the International Permaculture Journal in 1993. It was in part a response to what I saw as excessively negative attitudes to grass, pasture and lawns by permaculturalists. It explores the role of pastures and lawns in small scale permaculture systems to show how design, management and even attitudes can make the difference between inappropriate and appropriate system elements. In permaculture, it is essential that we continually question our most self evident ideas if we are to avoid dogmatic beliefs and be successful in establishing sustainable systems.**

## **LAWNS, MOWING AND MULCH IN PERMACULTURE**

Fresh from slashing the orchard during the peak of our spring pasture growth season, I am inspired to outline some of my thoughts on the role of pastures and lawns as mulch-producing systems in permaculture. These are ideas I explain with iconoclastic pleasure to tour and course participants at Hepburn Permaculture Gardens as a foil to any fixed prescriptions for permaculture.

Any sustainable system, unless very small and intensive, should generate the majority if not all its organic matter requirements (mulch and manure). In permaculture, we have emphasised the use of large quantities of imported mulches where these are available as waste products. Sheet mulching using such materials is a very successful garden establishment technique.

Once established, permaculture systems require much less mulch, but many gardeners find that what they generate is not sufficient. A chipper to convert excess shrub and tree biomass, especially fast growing legumes so enthusiastically planted by permaculturalists, is often the answer. Weed and chemical free home grown mulch. What could be more sustainable? However, analysis of the embodied energy in the chipper and its running costs would show this is hardly sustainable. The price tag on a well engineered chipper is at least a partial reflection of these energy costs embodied in the chipper.

Now I don't want to give the impression that every decision must necessarily satisfy strict sustainability criteria. Many strategies can be seen as part of a progressive transition to sustainable systems. If some use of machinery is acceptable (at least in affluent countries) then what about the pastures and lawns which we are so enthusiastically mulching out? Maybe designing to retain some of these vegetation system for mulch production is not such a bad idea.





Any experienced permaculturalist knows that a good stand of grass and clover provides a fantastic base to a sheet mulched garden. At Hepburn Permaculture Garden we have gone further in actually sowing pastures and lawns for later mulching out. Grass/clover mixtures plus volunteer weeds followed by seasonal cutting is one of the least cost ways to improve soil and provide surplus mulch. This is especially true in cool temperate climates where pastures grow almost year round.

## **Zone I**

The lawns immediately adjacent to the house at Hepburn Permaculture Gardens occupy excavated and filled areas which have less than 75mm of topsoil. (We reserved most of our topsoil salvaged during excavation for deep garden beds). A shaggy profusion of clover, grasses and weeds is not most people's idea of a lawn but it provides a low cost outdoor recreation space as well as being an element in the bushfire resistant design. In the late summer, the clover dies from lack of moisture but rye grass, dock, plantain and other weeds maintain a more or less green ground cover in our climate.

Regular but infrequent cutting (at least 50mm above the soil level) allows the roots to grow deep and yields a large volume of fine mulch, free of weed seeds and ideal for mulching around seedling in the adjacent raised timber vegetable beds. A reconditioned 1957 Victor lawn mower is getting close to a sustainable (if not the quietest) harvesting equipment available. A razor sharp scythe in the hands of a highly skilled and patient operator is the truly sustainable solution. A final value from the lawn is as a fresh green feed source for young chicks in an A-frame. On the lawn they can be monitored from the house, moved daily and kept separate from any possible disease contamination from the main poultry flock on range in the orchard pasture.

With the high clover content, nitrogen fertilisers are unnecessary. On the other hand, intensive harvesting of mulch from lawns and pastures over many years could eventually deplete mineral nutrients, but this can be compensated for by inclusion of deep rooted and mineral scavenging species and appropriate grazing. In our case dock and dandelion are two weeds which perform these roles while chickens and wild birds probably add adequate phosphate after the initial mineral phosphate applied at sowing 5 years ago.

On the Global Gardener television program, Bill Mollison described me as "a friend despite having a lawn". Everything Mollison says about lawns as a "green cancer" of the western world is true. But the lawns at Hepburn Permaculture Gardens show that with the right species selection, siting and management, lawns are appropriate elements in zone one of a permaculture system.





## Zone II

Pastures at Hepburn Permaculture Gardens are a major soil improving and mulch yielding element of zone two. Starting from a base of poor rabbit overgrazed pasture, cape broom, gorse and blackberry, regular slashing and rabbit proof fencing have provided a simple recipe for soil improvement over most of the one hectare site. By cutting everything a slasher again gives a competitive advantage to palatable species over spiny and unpalatable ones.

An eight horsepower, walk-behind slasher has been an effective and relatively simple implement for returning woody leguminous shrubs, brambles and tall stands of volunteer and sown pastures to the soil. A skilled operator can work it around trees and on steep slopes while on rough ground it helps level the ground and even shatter soft shale rocks to make more soil.

As I move through waist high grass or mulch up gorse and blackberry I muse on fact that my actions could be interpreted as a war against weed, shrub and grass growth waged regularly each spring. In fact, I experience the hard and tiring work as a bountiful harvest. Last season with heavy summer rains we got three years' worth of organic matter from three cuts.

Most of the cut material has been used to mulch the 100 plus fruit and nut trees but increasingly it is left to return to the inter-row space. The range of plant species is very diverse and includes flowering weeds which attract hover flies, wasps and other beneficial insects. Peter Harper, botanist and supervisor of gardens at the Centre for Alternative Technology in Wales, during a visit some years ago suggested the our weed pastures were some of the best European meadow systems he had seen anywhere.

Limited initial use of dolomite, rock phosphate and wood ash and more recent ranging of 30 plus poultry have led to increasing vigour of white and red clovers. Grass composition is gradually changing from low productivity bent, bromes and fog to winter and summer active high productivity grasses including rye, prairie and demeter fescue.

Lopping tagasaste and wattle inter plants through the orchard is now yielding between one and two tons of branch mulch each season. The branch mulch is ideal for the fruit trees because it prevents excess scratching by poultry and eventually provides our kindling supply for the slow combustion stove.

However, pastures will remain an important part of the system for many decades before tree shading leads to dominance of shade tolerant herbaceous ground covers. Rotational grazing with geese (and in the longer term sheep) should further accelerate nutrient cycling and improve pasture quality, but, of course, will reduce available mulch yields. I hope to see myself and the slasher gracefully retire from the heavy spring cutting as animals and deciduous tree canopy gradually take over the job of nutrient cycling within the orchard.





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A chipper for converting the tagasaste to garden mulch is a tempting idea but the cost of equipment and effort required to generate mulch would be many times that of the slasher cutting pasture systems. Therefore it makes more sense to let the grazing animals consume more tree fodder which can be direct grazed and easily lopped with forestry shears while retaining some surplus pasture for mulch.

### **Lawns and Cities**

Sustainable retrofitting of cities requires a huge increase in space allocated to food production, but the total area under lawns and pastures may remain the same to provide low cost open space as pedestrians and cyclists replace cars. These lawns could be designed and managed to yield maximum lawn clippings which along with chipped tree tops from urban forestry will be the primary sources of local mulch for food gardening.

After all this rational application of permaculture principles I have to admit that I also feel more at home in an open grassy woodland than a thick jungle. And after all "feeling at home" is just as important to productive permaculture as mulch.

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