

Rotations – by Grant Dryden

In many cases across this continent I have been asked the question about the suitability of growing crops such as beans & pumpkins etc simultaneously in amongst the maize crop. Biblically the solution to this question is found in Leviticus 19:19 ‘You shall not sow your field with two kinds of seed.’ Rotations are a wonderful way to ensure the maximum benefit of each crop type whilst ensuring the diversity of species & the obvious benefits thereof.

In my experience the only reason why crops are mixed successfully in maize stands is because the maize stands themselves are so poor with such high sunlight penetration as a result allowing for mixed crops to be even considered.

Considering the continental yield average is 350kg/ha it is no surprise to account for an alternative mixed crop doing ok within the stand. Consider that a maize crop grown with Farming God's Way at 60*75cm spacing at high standards will close the canopy within 3 weeks shading out weeds & other “mixed crops” it stands to reason that there would be no point to plant other crops simultaneously.

At the back end of the season after drying off however, it is a different story, as the conservation of moisture & shade effect of the existing stalks provide adequate cover for an alternate row planting of a legume such as pidgeon peas. This allows for a number of benefits such as clear row demarcations, additional income during “off season” & additional organic residue for preplanting God's blanket.

Most subsistence farmers don't do a **double cropping practice** due to inadequate rainfall, however this example above has proven very successful & a great use of space & time. However double cropping is considerably different to rotations. Double cropping is the planting of a second crop after the growing period of the previous crop.

Why practice rotations?

- Breaking of pest & disease cycles - pests & diseases are often specific to certain crop types & they build up in the soil or in the growing environment, so once they have their ideal environment changed they die off or move into more suitable mono cropping environments.
- Improvement of soil nutrients through nitrogen fixation & alternate nutrient demands of the rotational crop - certain species of legumes have symbiotic relationships with nitrogen fixing bacteria which are able to on plant die off release this N back into the soil with significant benefits to the following crop.
 - Different crops withdraw varying amounts of nutrients from the soil profile & at varying depths therein hereby allowing for a semi state of rest for the soil to rejuvenate it's nutrient levels
- Improvement of soil structure & hereby reducing soil erodability
- Some rotational crops can be good for breaking old plough pans because of their strong root systems eg Red sunhemp
- Spreading of risk
- Broadening of market opportunities
- Balanced dietary intake

How should one practice rotations?

- Rotational cycles refer to the time spaces between when the dominant crop type is broken & are advocated in varying time frames.
- In Farming God's Way we advocate that rotations should occur every 3rd year.
- Divide land into 3 equal proportions & allocate 1st two to staple crop eg maize & 3rd portion to the rotation crop. An example is shown below.

Year	1	2	3	4
Portion 1	Maize	Beans	Maize	Maize
Portion 2	Maize	Maize	Beans	Maize
Portion 3	Beans	Maize	Maize	Beans

- Rotational crops are many & the variations thereof are innumerable however there are general guidelines.
- Rotational crops should be a variation from monocotyledonous to dicotyledonous
- Rotational crops should preferably include a leguminous dicot species eg beans, soyabeans, pidgeon peas, cowpeas, sugar beans & groundnuts but can include sunflower, sweet potato & vegetables.
- The 3rd rotation portion can also be subdivided further to include a variety of vegetables for the families nutritional supplement.

Managing the rotation crop?

- Select the rotational crop based on your unique set of climatic, soil & clear objective variables
- Prepare the land according to the required crop type – see the table on page 13 of the Training manual for a break down of land preparation, fertilization, spacing, seeding rates, depth of planting, thinning, top dressing etc

What happens when you don't practice rotations?

- Increase in pest & disease incidence
- Soil fertility decrease
- Soil structural decrease
- Increased risk – all your eggs in one basket principle
- Poor nutritional balance
 - children with Kwashiokor
 - increased susceptibility to diseases

God in His wisdom was shown us what we ought to do by having a diversity of species which allows for many of the aforementioned benefits. In a largescale agricultural setup it is near impossible to mimic God's creational diversity & so we attempt to follow the principle by doing the diversity of species but over time on the same land area. A good rotational policy goes a long way to ensuring our lands remain an inheritance for future generations whilst still allowing for current land use to be profitable.