

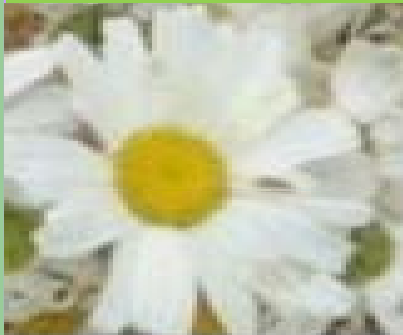
The case of Pyrethrum. A botanical crop.

Pesticidal Plant Workshop

**Arc Hotel, Morogoro, Tanzania, 5th-8th
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By Justus M.Monda

Chairman PGA Kenya.



Who is PGA?



- Is a National Farmer Organization HQ'd in Molo, Kenya
- A Democratic organization (last elections July 2009)
- Have voluntary membership (Current Membership 6000, potential,40,000)
- Strive to promote the interests of pyrethrum farmers in Kenya on issues touching on Producer Prices, markets; productivity; capacity building for the farmers ,information sharing& Regional Integration.



GOVERNANCE

- Congress – this is the Apex organ; and comprises the General Assembly meeting every five years; the climax is the election of new officials; ... 2009
- NEC- is the highest governing council of the PGA which comprises 5 representatives from the 20 pyrethrum growing Districts. It meets once every year to plan and approve all the transactions of the Organization.
- BoD – is the management arm that receives and approves reports of the organization, meets at least thrice a year and comprises nine elected members from 9 pyrethrum Growing Regions.
- Constitution – this is the approved governance manual that charts the roles and responsibilities of all governance organs as well as the functions of the organization.

Strategic objectives

Strategic Plan (2010-2014)



- Lobby and advocacy – master plan
- Capacity building of members and Org- leadership; policy; mgt
- Information sharing & communication, Production, marketing, and policy development.
- Partnerships and alliances- networking
- Sustainability – More membership.
- Diversification of membership- role of women; youth.
- Cross cutting: Environment, HIV-AIDs and Gender

PGA's areas of focus



1. Commodity value chain approach/ Agribusiness clusters -partnerships -

farmers have to commercialize and specialize to be food secure and to improve their livelihoods. There are many successful models

2. Identifying chain actors (Especially, New Investors) and after

liberalization of the Sub- Sector.-PG&TA.

3 Knowledge Management - for institutional development; info sharing-

learning-documentation-dissemination ; coaching & mentoring.

What are botanical crops?



- This refers to insect, pests and disease killers that come from plant extracts.
- Examples of these highly active plant chemicals are in pyrethrum whose extract(pyrethrins) are widely used in insect formulations-Doom, Rindsect etc.



Historical perspective of pyrethrum

- ❖ Pyrethrum growing in Kenya can be traced back to 1928 when it was introduced by the white settlers.
- ❖ By 1950 production had reached 5,710 MT with the peak in 1993/94 when the country produced 17,450MT (Against the world demand 20,000 MT) earning the country 4bn. Ksh. As at Nov. 2011 only 550 MT has been Achieved.
- ❖ Other countries that produce pyrethrum include:- Austria-20%, TZ 7%, Rwanda 5% and Uganda 1%.

Historical perspective contd



- Pyrethrum production in Kenya has problems at two levels.
- 1. Government-Policy and Management(Cap 340 laws of Kenya.)
- 2.Farmer level- Lack of clean planting materials and non payment to the delivered pyrethrum to the pyrethrum Board of Kenya. Farmers are demanding about 58Million Ksh. As at End of Oct.2011.

pyrethrum production (Small Scale)



- Kenya once accounted for 70-75% of the world pyrethrum market share.
- In the last 10 years or so, competition from synthetics, poor farming conditions, competition from new market entrants, and other factors have dwindled Kenya's leadership position (2%) November 2011.
- The number of growers has drastically reduced to 40,000 from 200,000.



Pyrethrum over synthetic products

- Pyrethrum is extensively used as a natural insecticide and botanical pesticide.
- Its active ingredients, including jasmolin, pyrethrin and cinerin, are effective against a host of harmful agricultural and household pests.
- pyrethrum is a broad-spectrum insecticide, has low residual toxicity and degenerates rapidly in the presence of sunlight.

Pyrethrum over synthetic products cont'd



- Pyrethrum insecticide is used in the form of cream, aerosol, spray and powder.
- After decades of use, no insect population has ever developed significant pyrethrum resistance. Intense study of the pyrethrum, molecule has produced the related synthetic materials, pyrethroids.



Pyrethrum over synthetics cont'd

- Environmentally, pyrethrum products biodegrade rapidly after application and leave no residual deposit.
- The pyrethrum marc, is a healthy feed supplement for dairy cattle, sheep, goats, pigs and horses and is comparable to other common feeds such as hay, Napier grass and bran. (MDG. 1 and 6)



Pyrethrum over synthetics cont'd

- Farmers have discovered in the recent past efficacy of pyrethrum marc to control maize stem-borers, one of the most important pests of Kenya's staple food. (MDG 1)



Pyrethrum agro technology

- The country has a large potential for small scale production of pyrethrum considering the many districts with suitable climatic conditions for the crop that include:-
 1. Rich volcanic soils
 2. Altitude of 2000 metres
 3. low night temperature
 4. Well distributed moderate rainfall
 5. Cool/ temperate weather



Pyrethrum agro technology cont'd

- Pyrethrum is well adapted to Kenyan conditions and does not require much of the chemical inputs hence can be adopted for vulnerable households
- The yield of fresh flowers and the content of pyrethrins depend on:
 - the variety used,
 - Other factors such as soil, climate, picking interval, and drying methods.



Pyrethrum agro technology cont'd

- On average, 3 -4kg of fresh flowers yield 1kg of dried flowers. About 250kg per hectare of dried flowers are produced during the first year, increasing to 1000-1200kg per hectare for the second and third year. After the third year, yields decline.



Pyrethrum production trend over the recent years

Year	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Acres		15,460	7,417	7,912	11,548	10,574	10,210
Yield (MT)	10,953	5,796	2,207	1,002.6	845.4	775.9	754.6

Source: Pyrethrum Board of Kenya



Challenges.

- ❖ **Lack/ Inadequate of Planting Materials:**– Many farmers are ready and willing to plant the crop but have not been able to get planting materials.(Researchers)
- ❖ **Low production per unit area:**– production ranged from 300-700kg per hectare due to poor agronomic practices against a potential of more than 1,000kg per hectare under rain fed condition.



Challenges cont'd

- ❖ **Marketing challenges:**– poor roads and inadequate vehicles for collection of produce from the buying/ collection center.
- ❖ **Payments of produce:**- Delayed and irregular payment to growers; sometimes bonus not paid.
- ❖ **Lack of farmers' confidence:**– Farmers confidence to the PBK has been a challenge considering the past experiences.(Cap 340).



Challenges cont'd

- ❖ **Changes in weather pattern/ Drought:-** Pyrethrum production has always been affected by changes in weather like drought and excess Rains.
- ❖ **Low quality of pyrethrum produce:-** Produce with low pyrethrin content leading to low payments.
- ❖ **Land subdivision:-** The sub-division of land in high potential areas into small uneconomical units for pyrethrum production.



Opportunities in pyrethrum industry

- **Pyrethrum growing-** it is estimated that over 30,000 tonnes of dried flowers can be produced annually in the country but currently about 1,000 tonnes is being produced. (**Note:** 1ha produces 1 tonne per year of dried flowers)
- **Pyrethrum seed multiplication-** There is an investment opportunity in the production of clean pyrethrum planting materials.

Opportunities in pyrethrum industry



J.P. Margo from India and Orion East Africa During a Field Visit to assess the status of Pyrethrum Production in Kenya. June 2011.

Opportunities in pyrethrum industry



Godrej Consumer products from China on a fact finding Mission in Kenya to assess the future prospects of investing in pyrethrum extraction in Kenya after liberalization of the sub-sector. Oct.2010.

Opportunities cont'd



- **Secondary industry** –there exist opportunities in secondary industry like manufacture of animals feeds and other pyrethrum by-products.
- **Research-** on high yielding and high pyrethrin content varieties.
- **value addition** -Has not been exploited in the region.



WAYFORWARD: BOTANICAL CROPS USAGE IN KENYA (PYRETHRUM)

- ❖ **Legislation:** Fast track developed framework for the registration of naturally occurring pest control products.
- ❖ **Awareness:** The larger part of the population is ignorant of the dangers present in the use of synthetics. Awareness campaigns should be intensified.

Way forward cont'd



- ❖ **Favorable policy:** The registration, restriction and banning of pesticide products, as well as the development and commercialization of Botanicals is all governed by state policy. This should be re-examined to allow other investors in the pyrethrum trade. (New partnerships, and investors).

Way forward cont'd



- ❖ **Funding:** Many researchers have recognized the fact that dealing with natural products is a lot more intricate and expensive than dealing with synthetics. Funding for research institutions, mass production and commercialization require positive support.

In Conclusion



- ❖ Gender, literacy levels, wealth endowments in form of land and old age are key factors to be considered for intervention for botanical pest controls in the field and stores.
- ❖ Botanicals are popular among the illiterate and resource poor.(Enhance the knowledge of the Botanicals to all without discrimination).
- ❖ To intervene, scientists need to upgrade local botanical pesticides into marketable products that can attract all cadres of farm households.









THANK YOU

