

REPORT ON THE CURRENT STATUS OF CULTIVATION AND EXPORT OF DEVIL'S CLAW IN NAMIBIA

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**PREPARED FOR
PHYTOTRADE AFRICA**

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1. INTRODUCTION

As Devil's Claw is a focal species for PhytoTrade it is currently pursuing a number of initiatives including the preparation of Devil's Claw Stewardship Charter which is aimed at encouraging sustainable harvesting and more equitable trade.

In this regard PhytoTrade Africa commissioned CRIAA SA-DC to undertake some preliminary research with regard to the cultivation and current trade status of Devil's Claw in Namibia and South Africa. The aim of this research was to assess the capacity in the region to produce and supply sustainably harvested Devil's Claw.

Within the ambit of this research this report focuses on the current status of Devil's Claw exports as well as that of cultivation efforts. It should be noted that the unorganised nature of the harvesting and trade of Devil's Claw makes it at times difficult to quantify and qualify certain aspects related to this.

2. METHODOLOGY

The information contained in this report is extracted from previous reports and information supplied by key stakeholders in the industry. A list of the reports used and names of those who supplied information can be found at the end of this report.

It should be noted though that while every effort was made to ensure that the information contained herein was correct, information on prices should be treated with caution as they present an average derived from various sources and in some case some stakeholders were not prepared to divulge that kind of information. The information in this report will in some cases not mention specific names as this might reveal trade information that is confidential.

3. CURRENT STATUS OF DEVIL'S CLAW EXPORTS

The trade in Devil's Claw from the range states of southern Africa is probably one of the oldest with respect to indigenous natural products. The trade began to increase significantly in the 1960's and has continued to increase since then.

In the report "Devil's Claw Feasibility Study" undertaken by Ben Bennett in November 2006 it was estimated that the total market capacity was around 450 tons per annum. Namibia is by the largest producing country supplying more than 90% of the total traded. In that same report it is mentioned that between 1992 and 2006 the average amount traded per year was about 423 tons from the region although there was a significant variation in amounts exported per year (70 tons and 900 tons)

It must also be stated that the proposed PhytoTrade Africa undertaking must be seen in light of the fact that the Devil's Claw trade, largely but not only with respect to the export of Devil's Claw, is still highly unorganised. No trade associations of any kind exist and there is no evidence that this is likely to happen in the near future. There is however increasing organisation at a harvester or producer level with a number of harvester groups from conservancies in Namibia making a significant contribution to supply.

At present the Devil's Claw Working Groups established in Namibia, South Africa and Botswana in 2002/2003 are generally inactive at present although the Namibian working groups is in the process of being revived. The Devil's Claw Range State Working Group (DCRSWG) established in September 2003 is also largely inactive although it is hoped that a meeting will be convened in the near future. Namibia is the current chair of the DCRSWG.

3.1 DEVIL'S CLAW EXPORTS FROM OTHER COUNTRIES

The table below provides an estimate of the total exports from the three main exporting countries. These figures especially those from South Africa should be treated with caution as these figures are compiled from data from different provinces, no central record keeping is maintained.

DEVIL'S CLAW EXPORTS (KG)				
YEAR	BOTSWANA	SOUTH AFRICA	NAMIBIA	TOTAL
1992	10,719		96,000	106,719
1993	3,278		66,000	69,278
1994	24,437		158,000	182,437
1995	45,633		284,409	330,042
1996	0		313,652	313,652
1997	5,493		251,091	256,584
1998	501		613,336	613,837
1999	2,050	6,936	604,335	613,321
2000	0	341	379,740	380,081
2001	33,506	31,112	726,333	790,951
2002	27,950	20,619	851,016	899,585
2003	3,084	4,500	592,387	599,971
2004	42,025	14,000	331,466	387,491
2005	540	27,000	336,713	364,253
2006	2,249		430,000	432,249
2007			446,000	446,000
2008 (Sept)			585,000	585,000
TOTAL	201,465	104,508	7,065,478	7,371,451

A small Devil’s Claw project was initiated in the Hwange district in Zimbabwe in the Victoria Falls area in 2006. The species being produced is *H.zeyheri*. Although sustainable harvesting quotas (See point 3.4 below) were reasonably high the project has under-supplied due to a number of reasons that will not be discussed here. See table below.

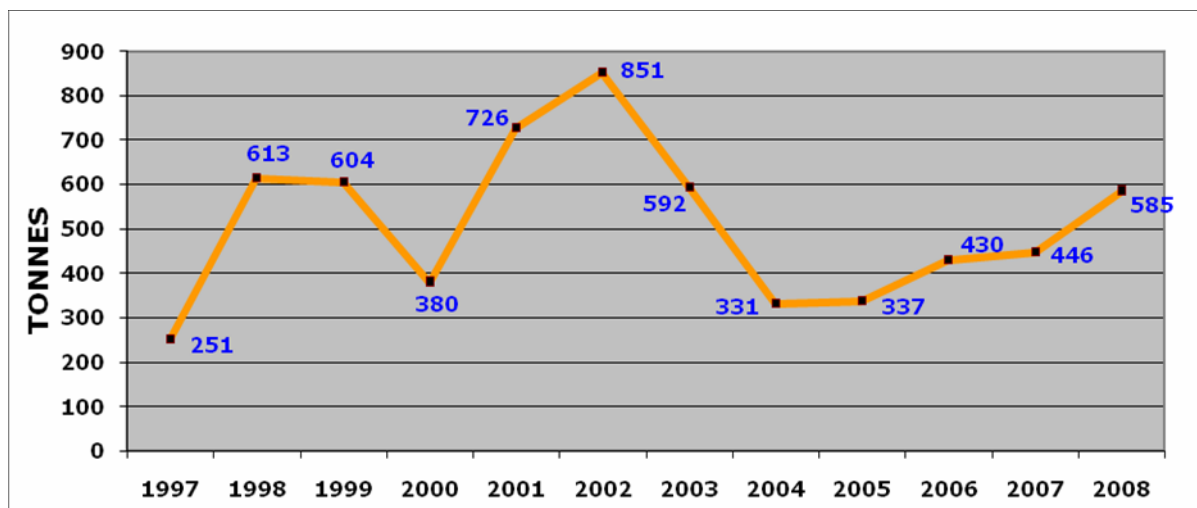
YEAR	QUOTA (KG)	QUANTITY SOLD (KG)	NUMBER OF HARVESTERS
2006	1000 Plus	405.00	62
2007	Approx 8000	1471.00	283

The quota for 2008 is also about 8000 Kg and over 300 harvesters were registered. It is doubtful as to whether this amount will be harvested and sold either.

3.2 NAMIBIAN DEVIL’S CLAW EXPORTS

The graph below indicates the amounts exported on a yearly basis between 1997 and September 2008. The average total over this period is approximately 405 tons. These figures do not reflect what might have been imported in one way or another from either Botswana or Angola. It is known for example that at least 30 tons was imported into Namibia from Botswana in 2007.

Namibian Devil’s Claw Exports (1997 – September 2008)

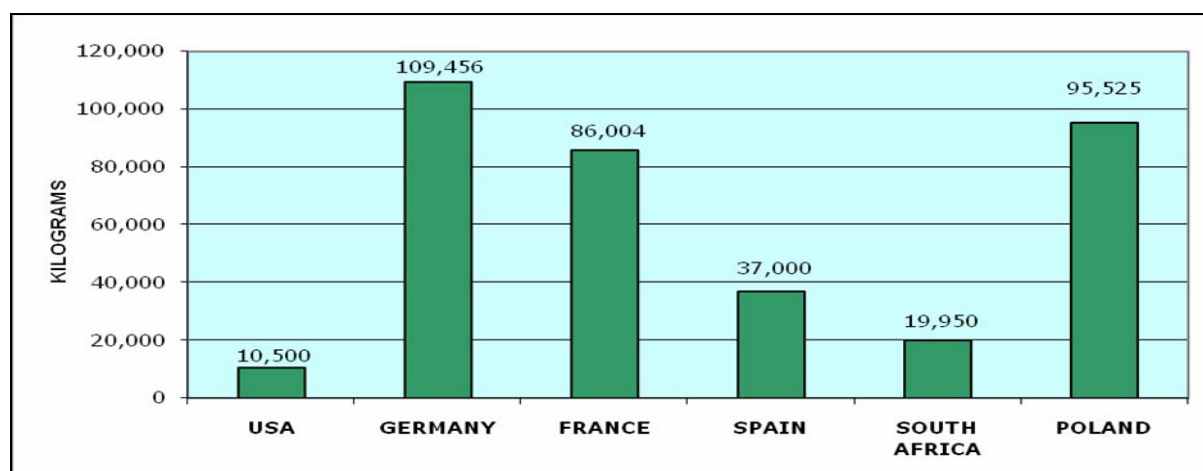


A major problematic area with regards to the export figures is that they do not make any distinction of what species of Devil’s Claw is exported. It is widely accepted that over 50% of the exports in the past have comprised of *Harpagophytum zeyheri* contrary to the general perception that it is of an inferior quality.

The graph below presents the six major export destinations for Devil’s Claw from Namibia in 2006. While Germany is still the largest importer this was the first year that

Poland became an export destination. The reason for this is that a major importer (Martin Bauer) recently shifted its operations to Poland.

Namibian exports by major destination (2006)



3.2.1 Current Status of Exports from Namibia

The table below indicates what is exported on a monthly basis from Namibia for the period 2007 and September 2008. What is interesting to note is that for 2008 the quantities have so far exceeded that exported in the corresponding months in 2007 except for February and March. However at this stage it appears that exports from Namibia will be in the region of 600 – 700 tons far exceeding that of 2007.

Namibian monthly Devil's Claw exports (2007/July 2008)

	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	TOTAL Tons
2007	29	24	44	31	43	44	39	32	28	27	87	18	446
2008	34	17	9	52	52	91	128	115	87				585

In 2008 it appears that there has been a major (and more open) increase in the demand for *zeyheri*. When investigations were made as to why this may be the case the main reason given was that it was cheaper (pers com Herbs International Service – May 2008). However there also seem to be mixed reports with regards to the increased demand for *zeyheri* with some exporters indicating that the majority of their exports are still that of *procumbens*. Apart from the fact that quality now appears to no longer be a limiting factor this increase raises concerns for the sustainability especially for material originating in Angola where no controls appear to be in place.

3.2.2 Namibian Exporter Survey

A questionnaire was sent to five of the main exporters of Devil's Claw from Namibia. (The questionnaire is attached and names of those it was sent to are included in the reference section of this report) Only four exporters returned the questionnaire. Unfortunately the questionnaire did not really yield the information that it was anticipated to do. Below are some of the results.

a) Pricing

It is difficult to get an exact handle on the price not only because it is usually confidential but also because it varies significantly. However to date the following prices can be used for the purposes of this report (CIF)

<i>Procumbens</i>	€ 3.30 – € 4.00 / kg (This encompasses the range of prices provided. The average price is about € 3.65)
<i>Zeyheri</i>	€ 2.55 – € 3.15 / kg (Average € 2.85)
Organic <i>procumbens</i>	€ 5.00 / kg

A farmer in South Africa is currently supplying cultivated material at € 5.25 / kg ex farm. (See point 4 below for quantity produced)

The price received by harvesters varies even more. However in general if delivered to the exporter the following prices are in effect, N\$ 30.00 / kg for *procumbens* and N\$ 20.00 / kg for *zeyheri*.

b) Supply & Demand

So far it appears that supply is higher than current demand but traditionally most of the buying usually happens in the last half of the year and this may change.

Only one exporter deals exclusively in *zeyheri* and they also tend to command the higher end of the pricing structure. The other exporters indicate that *procumbens* is still largely preferred in the trade although one exporter has recently experienced an increase in demand for this species. It must be remembered that it is still unclear as to exactly which species is exported as this is not required to be stated on the export application form.

Some of the issues related to supply which have been identified by exporters as problematic include, traceability and moisture content. There also seems to be an undersupply between February and May at the beginning of the season when the harvest season has only started. As a result if demand is high the risk of the supply of insufficiently dried material is higher. It also appears that some

exporters commit themselves to supplying international buyers far too early in the season which compounds this situation.

Given the limited undersupply at the beginning of the season it is equally true that there is a limited oversupply at the end of the season (September & October). The consultant has significant experience of sellers (people buying Devil's Claw using "buy & sell" permits issued by MET) looking for exporters to buy their Devil's Claw during this time. This results sometimes in lower prices being paid to these sellers as there is an oversupply. It is common that many exporters carry over stock into the following year although the quantities are not really known.

The quantities that are exported by individual exporters vary considerably. Of the four responses the lowest range was 40 – 60 tons with the highest being 150 – 200 tons per year.

As there are few long-term contracts between exporters and buyers it is also difficult for exporters to judge what quantities they should purchase in a given year. The capital outlay is significant and there is a risk of the exporter sitting with this stock until the following year.

c) Sustainability

With regards to responses concerning issues of sustainability two of the exporters indicated that sustainability was only possible in collaboration with conservancies or other groups, i.e. where training and monitoring was implemented.

One exporter indicated that they thought that 40-70 % of *procumbens* and 20-30% of *zeyheri* was harvested sustainably this was difficult to quantify.

However, unless the sustainability (or degree of sustainability) can be verified in some manner, for example monitoring or external inspection, it is a near impossible task to make some kind of estimation on the degree of sustainability.

With regards to sustainability it should be noted that the quantity of organically harvested Devil's Claw has increased more than 6 times in the last 2 years. Organic certification requires compliance with sustainability, for example, through conducting resource surveys and setting harvest quotas and undertaking post harvest impact assessments, and therefore one can conclude that significant steps have been made towards increasing the supply of sustainably harvested Devil's Claw from Namibia.

See point 3.4 below for further discussion on sustainability.

3.3 ORGANICALLY CERTIFIED DEVIL'S CLAW

Up until recently the supply of organically certified Devil's Claw has been minimal. Between 2003 and 2006 a total of approximately 14 tons (Average of 3.5 tons per year) of organic Devil's Claw was sold from an area covering about 200 000 ha. This was mainly from the Sustainably Harvested Devil's Claw (SHDC) project in the Omaheke. The organic license has since lapsed but might be renewed in the near future.

In 2008 the area now able to supply certified material is about 2.7 million ha. This is largely due to the inclusion of a number of conservancies. The production and sale of organic material in 2007 was about 30 tons. This is expected to increase to between 35 and 40 tons for 2008 and will also increase in 2009. In 2009 the Kyaramacan Association, situated in the Bwabwata National Park in west Caprivi is expected to be certified to supply organic *zeyheri*. Estimated production is expected to be in the region of 20 tons per annum.

The increase in organically certified Devil's Claw also means that a significant improvement has been made with regard to sustainability, traceability, quality and price paid to harvesters. In the areas now supplying organically certified material Management Plans are also now in place. (An example for the Nyae Nyae & N# a jaqna conservancies is attached)

The table below presents the production and income for these two conservancies for 2007.

2007	NYAE NYAE	N#A JAQNA
Devil's Claw harvested & sold (kg)	8,678	11,628
Number of villages / groups	17	17
Number of harvesters	210	257
Harvester income (N\$ 19.00 / kg)	164,554	220,586
Harvester bonus (N\$ 1.00 / kg)	8,678	11,628
Sub Total harvesters	173,232	232,214
Average income harvesters (N\$)	824	903
Conservancy income (N\$ 4.00 / kg)	34,713	46,514
Total Income (N\$)	207,945	278,728

To date approximately 27 tons of organically certified material has been produced by these two conservancies in 2008 and the total production could be in the region of 35 tons by the end of the harvesting season.

Only one exporter in Namibia is presently certified to buy and sell organic Devil's Claw.

3.3.1 Fair Trade Certified

There is also an increasing demand for Organic Fair Trade Devil's Claw and one exporter is certified to supply this material. At present the supply is about 3 tons but is expected to grow.

3.4 RESOURCE SUSTAINABILITY

Since 1977 when Devil's Claw was listed as a protected species in Namibia, requiring a permit to harvest and sell, the reintroduction of the permit system in the 1990's, the proposed listing of Devil's Claw on Appendix II of CITES, concerns regarding the sustainability of the resource has always been high up on the agenda.

Research on the *"Population Dynamics and Sustainable Harvesting of the Medicinal Plant Harpagophytum procumbens (Devil's Claw) in Namibia"* was carried out over a five-year period between 2001 and 2005 at three sites located on two farms, Vergenoeg and Ben Hur, in the Omaheke Region of Namibia. (Cole & Strohbach 2007). Two main results are relevant.

1. Detailed calculation methods to determine annual harvesting quotas were developed together with rapid techniques for assessing the quantity of the resource.
2. Regular harvesting did reduce the growth of the primary tuber and storage tubers. However, it was found that this did not significantly increase plant mortality if the primary tuber was not disturbed during harvesting and the plant's normal growing cycle was not disturbed.

Sustainable harvest quotas are calculated using data generated from resource surveys. Resource surveys involve carrying out transect walks through populations of Devil's Claw in order to assess plant density for a given area. A quota is then calculated based on an expected dry weight yield per plant. It has been estimated that approximately 40g dry weight can be harvested from each plant, although this figure may vary depending on rainfall area and other environmental factors.

However, resource surveys are not only time consuming but are limited in terms of the resource area that can be covered. Very often not all populations can be surveyed or even identified. They therefore can only provide a rough guideline.

Furthermore the establishment of harvesting quotas does not imply that sustainable harvesting methods will be carried out. The harvester is ultimately the main person responsible for ensuring the sustainability of the resource at the point of harvest. It is therefore important to conduct monitoring activities during and after the harvesting to

ensure that sustainable harvesting methods are being complied with, quantity alone cannot ensure sustainability.

4. DEVIL'S CLAW CULTIVATION

Cultivation efforts of Devil's Claw came to the fore around 2000/2002. This was mainly in response to concerns regarding the sustainability of supply and the impetus generated from the proposal to have Devil's Claw listed on Appendix II of CITES in 2002.

At that stage there were three main players involved with Devil's Claw cultivation trials on a reasonably large scale, two in South Africa and one in Namibia, although the Namibian entity was linked to South Africa. The two South African projects have received some public sector funding. The three main cultivation efforts were :

1. Grassroots Natural Products (Western Cape – South Africa) in collaboration with a third party.
2. Gert Olivier (Northern Cape – South Africa) in collaboration with the University of Münster. Received some public sector funding.
3. Eahero Farming (Namibia) in collaboration with Grassroots and formerly Dr G. Betti Consultants. A permit to import 35 000 seedlings from South Africa was requested and issued by MET in Namibia in 2001.

In addition, other research efforts in Namibia and elsewhere included :

- The Polytechnic of Namibia (Phd thesis).
- University of Namibia. Germination trials and field tests, no results published.
- University of Dublin (Ireland). Research carried out in collaboration with Yves Rocher on In Vitro techniques for propagating Devil's Claw.
- The Council for Scientific and industrial Research (CSIR- South Africa). The CSIR is was involved in setting up two test cultivation sites in the Northern Cape – South Africa with San communities.

4.1 CURRENT STATUS

There are currently still only three major cultivation (those which are or should be in production in the very near future) efforts being undertaken, although two of the previous undertaking have ceased operations and two new undertakings have been initiated. These are reflected in the table below.

Some of the reasons for those cultivation efforts being terminated are discussed under 5.1 below.

Current and production of cultivated Devil's Claw

ENTITY	CURRENT PRODUCTION	2009	2010
Gert Olivier South Africa	19 tons (€ 5.25 ex farm)	19 tons	25 tons
Gero Diekmann Namibia	None	500 kg	1500 kg
African Wild Dog Conservancy Namibia	None	500 kg	1000 kg

4.1.2 African Wild Dog Conservancy

A nursery at the village of Okondjatu in the Otjozondjupa region of Namibia is well established and two field trial plots have been established.

1. Established 2003/04 (Situating in Okondjatu)
Approx size : 2 ha
Approx 2300 seedlings transplanted (Oct 04 & Feb 05)
Positive growth : 1600 (Dec 05)

2. Established Oct 2005 (Situating ± 5 km north of Okondjatu)
Approx size : + ½ ha (5 600 m²)
Approx 1000 seedlings transplanted (Nov 05) – 60% of area
Positive growth : 350 (Dec 05)

In addition to the above there are two other cultivation efforts underway in South Africa.

a) Devil's Claw cultivation in the Northern Cape

A cultivation project was initiated in the Ganyesa area by the South African government in 2006. According to reports the South African government has invested about 5 million rand. It appears that the project is based mainly on transplanting tap roots into a fenced area, although some cuttings will also be used. The project makes provision for an area of 40 ha to be fenced and the construction of processing and storage facilities.

At the time of writing this report no indication could be obtained as to the current status of this project.

b) Devil's Claw cultivation (Knersvlakte) North West province

Prof Dieter Von Willert who developed the strip cultivation method in Namibia and South Africa has initiated a cultivation project on a farm. No information as to the current status could be obtained.

In addition to the above the University of Namibia has also been involved in small research efforts into Devil's Claw cultivation in the Okakarara area although no real progress or results have been published yet.

4.1.2 Funding Availability

The only significant public sector funding initiative supporting the development of Devil's Claw cultivation in Namibia was made available through the NASSP programme between 2003 & 2006 to the African Wild Dog conservancy.

The following funded programmes currently being implemented or planned for the near future provide degree of potential funding opportunities for activities focussed on Devil's Claw. However most of this support is focussed on wild harvested Devil's Claw and not cultivation.

- **The Integrated Community Based Ecosystem Management (ICEMA) Project**

ICEMA provides direct support to the Community Based Natural Resource Management (CBNRM) Programme in Namibia. The project has been extended under a no-cost extension agreement until March 2010. It has a number of components one of which focuses on indigenous natural product development. It provides small grants to target sites (conservancies) which can include activities on Devil's Claw. It mainly supports building capacity of primary producer groups. (The Nyae Nyae & N=aja Devil's Claw project is currently funded by ICEMA)

- **The Country Pilot Partnership (CPP) Programme for Integrated Sustainable Land Management**

The CPP programme was officially launched in September 2008. The project duration for the CCP is 5 years although it is unclear when the period started, some information indicates that it terminates at the end of 2009 and that another 5 year period will follow. Small grants of approximately N\$ 150 000-00 towards land management orientated projects are considered and could include Devil's Claw. The Namibia Nature Foundation also co ordinates part of the programme with partners in selected regions of Namibia and the possibility of sourcing funding in collaboration with these strategic partners is potentially possible.

- **The Millennium Challenge Account (MCA) – Indigenous Natural Products Sector**

This component of the MCA will assist in increasing the volume, quality, and value addition of the natural products that Primary Producer Organisations (PPOs) collect and harvest, and to advance their operational and business capacity. In addition, this activity will improve market information to PPOs, provide capacity

building for the Indigenous Plant Task Team and support the formulation of regulations, policies and implementation plans to ensure the protection of indigenous natural products.

The "compact" has been signed but implementation will only begin in mid 2009 once a number of issues have been finalised. An amount of approximately N\$ 7 million has been allocated for this component. It is still unclear as to the exact composition of the activities etc and when this component will be implemented. Some indications are that the earliest possible date for commencement is early 2010. The programme will run for a 5 year period.

Devil's Claw is also listed as a priority species by the Indigenous Plant Task Team (IPTT). While no direct funds have been set aside to fund Devil's Claw activities the IPTT remains a potential avenue to source funding. The Ministry of Agriculture Water and Forestry (MAWF) makes a contribution of around N\$ 150 000-00 per year to be used to fund IPTT approved projects. The IPTT is set to co ordinate the activities of the natural resource component as part of the MCA.

At the time of writing this report there are no funds, either from the government or other funding programmes, directly earmarked for the continuation of the development of Devil's Claw cultivation efforts in Namibia.

5. CONCLUDING REMARKS

5.1 PROBLEMS ASSOCIATED WITH DEVIL'S CLAW CULTIVATION

There are number of problem areas associated with cultivation which impact on the potential success of such efforts including the following main aspects.

- The cost of production is relatively high depending on what approach is taken. However the significantly lower price of wild harvested material means that buyers are in general unlikely to opt for the more expensive cultivated material. A significant amount of labour input is required to plant seedlings, maintain a free weed environment and process the material all of which will need direct supervision.
- Because of the lower germination rates (for seeds) and other draw backs associated with using germination enhancement techniques (such as potential higher mortality rates on transplanting) and other factors it is difficult to achieve economies of scale necessary in order to cover production costs let alone make a profit. Other crops can potentially realise much higher return for commercial farmers and hence farmers are reluctant to undertake any Devil's Claw cultivation activities. In addition it should be noted that Devil's Claw requires at least four years to reach harvesting age, where

the tubers are large enough to make it worthwhile. Growth rates are heavily influenced by rainfall.

- Although there are different opinions on the issue there is some evidence to suggest that the level of active ingredients (mainly harpagoside) is lower in cultivated material. Clearly more research on this issue will be needed.

On a broader basis with respect to the cultivation of Devil's Claw a Common Statement issued by the participants, including the range states of South Africa, Botswana and Namibia, of the Regional Devil's Claw Conference held in Windhoek, Namibia in February 2002 agreed on the following :

- cultivation has the potential to both conserve and overwhelm the wild gathered resource,
- notwithstanding the above, that space and opportunities should be provided for all types of production,
- there is a role for government in setting policy and supporting research particularly with regards to small holders, and,
- the market for Devil's Claw should be managed to diminish the impact of extreme market conditions.

The issue of Devil's Claw propagation and cultivation however also raises serious concerns about the access to and protection of genetic material as well as the transfer of any benefits. This is even of more concern with efforts occurring outside of the region.

Aside from the research on germination and cultivation methods considerable debate has also centred on the potential social impacts on harvesters. On the one hand it was argued that large scale cultivation undertakings where access to capital would be required would put harvesters out of business. On the other hand however, appropriate cultivation efforts at a rural level could also have a positive impact on the livelihoods of rural harvesters. For example, appropriate cultivation efforts could provide rural harvesters the opportunity to increase their resource base thereby ensuring their continued participation in the trade. At the same time cultivation efforts or enrichment planting programmes could also provide an opportunity to "rehabilitate" areas where unsustainable harvesting has taken place.

Nevertheless given the above it would seem that there has recently been a significant increase in the supply of sustainably harvested Devil's Claw, which is largely certified organic and is also characterised by much improved terms for harvesters, in many cases contracts with an exporter are in place. Monitoring mechanisms in the areas where this Devil's Claw is sourced are also in place. While everything is not perfect huge strides are being made and the supply of Devil's Claw under these or similar conditions should increase in the future with more supply areas following this route.

If the increase in demand for *zeyheri* proves to be significant and given its lower price this may impact negatively on the price of *procumbens*. In addition this could also see an increase in demand and supply of unsustainably harvested material from Angola where harvesters and suppliers are often exploited resulting in little attention being paid to the impact on the sustainability of the resource.

Finally given the high supply of cheap wild harvested Devil's Claw it is unlikely that cultivation will take off in any major fashion considering the costs and other technical problems associated with cultivation. Having said that however there is increasing evidence of a large reduction in certain areas of the resource and this not only impacts on the continued supply of Devil's Claw from Namibia but also and perhaps more importantly on the livelihoods of the harvesters and therefore continued and concerted efforts of undertaking appropriate cultivation with rural communities should remain on the agenda.

LIST OF REPORTS CONSULTED

Ben Bennett (Nov 2006)	Devil's Claw Feasibility Study
Dave Cole & Ben Bennett (June 2007)	Trade, Poverty and natural Products : Lessons Learned from Namibian Organic Devil's Claw
NASSP 024/2006 (Cole 2006)	Support to the Devil's Claw Trials
University of Namibia (July 2008)	Report on Trip to Okakarara
Dave Cole (August 2004)	An Initial Assessment of the Impact of Cultivation on Rural Livelihoods and the Current Structure of the Formal and Informal Marketing Structures of Devil's Claw in Namibia
Cole & Strohbach (2007)	Population Dynamics and Sustainable Harvesting of the Medicinal Plant <i>Harpagophytum procumbens</i> (Devil's Claw) in Namibia

LIST OF PEOPLE CONSULTED

Mark Durrheim	Grassroots group RSA	mark@grassrootsgroup.co.za
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PHYTOTRADE AFRICA DEVIL'S CLAW QUESTIONNAIRE

PLEASE ANSWER THE FOLLOWING QUESTIONS WHICH ARE RELEVANT TO YOU
You may chose not to answer some such as the price but it would be useful if you could provide an average price

1. WHAT IS YOUR CURRENT LEVEL OF EXPORT ? (Average in tons)

2. IS DEMAND CURRENTLY HIGHER THAN SUPPLY OR OTHERWISE ?

3. WHAT ARE YOUR CURRENT PROBLEMS WITH REGARDS TO SUPPLY ?

4. WHICH SPECIES OF DEVIL'S CLAW DO YOU MOSTLY SUPPLY AND WHY ?

5. WHAT IS THE CURRENT PRICE PER KG (Landed in Europe) You may provide a range or average

PROCUMBENS :

ZEYHERI :

6. WHAT ARE YOUR VIEWPOINTS ABOUT THE CURRENT LEVEL OF SUSTAINABILITY OF SUPPLY OF BOTH SPECIES OF DEVIL'S CLAW IN NAMIBIA

7. IF YOU ARE CURRENTLY INVOLVED IN DEVIL'S CLAW CULTIVATION WHAT IS YOUR CURRENT LEVEL OF PRODUCTION (2008)

8. IF YOU WERE PREVIOUSLY INVOLVED WITH CULTIVATION AND ARE NO LONGER INVOLVED WHY DID YOU STOP YOUR CULTIVATION EFFORTS ?

9. IF YOU ARE PRESENTLY DOING CULTIVATION WHEN WILL YOU MAKE THE FIRST HARVEST AND WHAT IS YOUR EXPECTED LEVEL OF PRODUCTION ?

10. WHAT LEVEL OF PRODUCTION WOULD YOU BE AIMING FOR IN THE FUTURE?

PLEASE EITHER EMAIL THIS BACK TO ME AS SOON AS POSSIBLE AT :
dave.cole@criaasadc.org

OR

FAX : 061 232293

<p>THANK YOU VERY MUCH FOR YOUR TIME</p>
