

### Artemisinin Market Update – October 2012

This market update represents A2S2’s view on the present artemisinin production and market situation. It is based upon our latest intelligence, gathered from a wide variety of sources. This view will be further refined over the next few months following visits to the main artemisinin producing countries and discussions with API/ACT manufacturers and donor organisations.

#### Production

Due to the high prices at the end of 2011, farmers and extractors increased Artemisia plantings at the beginning of 2012, compared with production in 2011. Based upon conditions assessed in June 2012, A2S2’s global artemisinin forecast for production in 2012 is estimated to be around 200 metric tonnes (MT) (minimum), plus a possible 50MT from wild leaves (China), if required (depending on the market and prices). This forecast is based upon the total cultivation area; the good climatic conditions experienced this year; and the relatively high artemisinin content in the leaves.

However the low level of ACT demand over the past six months, combined with the huge uncertainties on the future of AMFm and the arrival of semi-synthetic artemisinin in the market, has put considerable pressure on prices which have declined from a high of 800 – 950 US\$/kg last year, to a range 420 – 550 US\$/kg at the present time. This situation could well discourage some extractors from buying all available leaves, thus making it very difficult to currently provide a more accurate artemisinin production forecast.

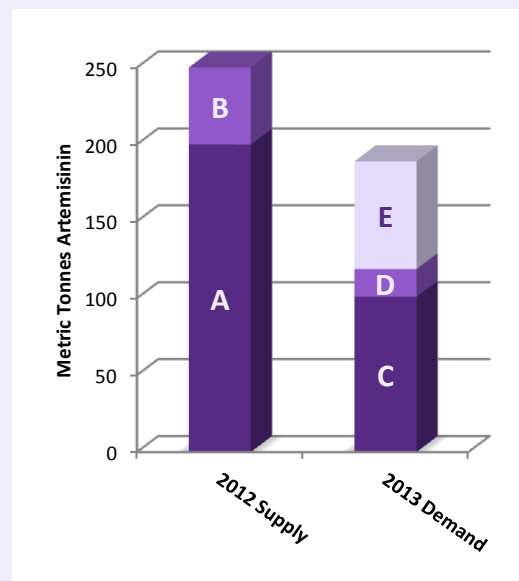
There also exists the concern that reduced prices and increased stocks could also lead to lower Artemisia plantings next year, resulting in a return of the ‘boom and bust’ situation that we have seen

in the past. It is our view that buyers must respect artemisinin production costs, as if prices fall much below present levels, it is feared that artemisinin extractors could suffer serious financial difficulties.

#### Demand

Artemisinin demand, as reported by the UNITAID supported and BCG managed ACT Forecasting Consortium is between 101 and 119MT for 2013, depending on the different scenarios which are being considered for the future of AMFm. For more details see [ACT Forecasting Update Q2-2012](#).

**Figure 1: A2S2’s Current Market Forecast**



- A: A2S2 production forecast
- B: Potential production from wild leaves (China)
- C: ACT Forecasting Consortium’s minimum forecast
- C+D: ACT Forecasting Consortium’s maximum forecast
- E: Other requirements (non-qualified products, mono-therapies, additional in-country requirements; and the rebuilding of inventories)

The Consortium’s figures do not however cover all global artemisinin requirements, such as demand for non-qualified products and mono-therapies;

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additional in-country requirements; and the rebuilding of inventories. A2S2 estimates this additional demand to total around 60MT if the best case scenario applies for AMFm or around 80MT, in the worst case scenario. This gives a total global artemisinin demand of around 180MT. This will of course also depend on the prices being viable for both the buyers and the extractors i.e. not too high, nor below production cost.

### AMFm

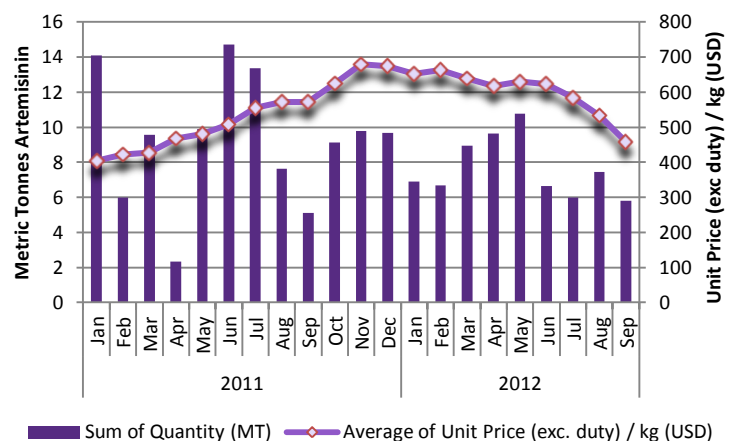
As stated above, the Board of GFATM has indicated that the future of AMFm will not be decided until their Board Meeting in mid-November 2012. Different scenarios are under evaluation, but at this time it is difficult to say what will be the outcome. Most probably, an interim period will be decided upon before introducing changes in the mechanism of drug approvals and distribution.

**Figure 2: Artemisinin Imports into India**

Since 2011, A2S2 has been tracking artemisinin imports into India, in terms of volume and prices (both exc. and inc. duty). This data helps us to make statements regarding prevailing price levels and artemisinin supply projections.

As shown in the adjacent chart, the average monthly unit price increased by around 170%, December 2011 vs. January 2011. Since June of this year, prices have fallen rapidly to around the US\$ 450 mark in September 2012. In terms of volume, over 110MT of artemisinin was imported into India in 2011. So far in 2012, over 69MT have been imported.

Finally, in July 2012, A2S2 has identified the first semi-synthetic import (qty: 1kg) into India (from Europe) since we have been tracking such data.



### Semi-synthetic Artemisinin

According to our latest information, Sanofi is in contact with WHO concerning assessment and pre-qualification of their semi-synthetic artemisinin and artemisinin-derivative APIs, obtained from the semi-synthetic source. Semi-synthetic artemisinin is already available for experimental transformation into artemisinin-derivatives APIs.

Sanofi has reported that it is working to produce 10MT of the semi-synthetic product by the end of 2012 and will be ready to produce around 40MT in 2013. No firm prices have yet been announced.

Max-Plank Institute has informed A2S2 that they are making good progress with their semi-synthetic artemisinin programme and will soon be releasing further information on both progress and potential partners.

### High-Yielding Artemisia Seeds

A number of national and individual grower selection programmes have slightly increased the Artemisia percentage in the leaves and the dry weight yield of leaves per hectare. However, over the past five or so years there has been little consistency in these increases and global yields have altered little over the same period.

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Promisingly though, high-yielding seeds from the following donor funded programmes are now available on the market and are showing consistent improvements in yields:

Mediplant, Switzerland has been developing Artemisia varieties for almost 20 years, and their hybrids are widely grown, particularly in East Africa and Madagascar. Through their development programme, and in collaboration with CNAP (see below), they now have available high-yielding Artemisia varieties. For more information, contact [xavier.simonnet@acw.admin.ch](mailto:xavier.simonnet@acw.admin.ch)

CNAP's (Centre for Natural Products) fast track breeding programme (funded through the Bill & Melinda Gates Foundation) most promising new hybrid varieties have been extensively tested for their yield, robustness and resistance to pests and diseases at field trial sites in China, East Africa, Madagascar and India. The trials enabled CNAP to assess their hybrids under a range of climatic conditions and find those which are most capable of performing well in the main regions of commercial cultivation. Results from the trials were used to select the final hybrids for commercialisation by East-West Seeds. The project's field trials are now complete and Artemisia growers who are interested in trialling new hybrid varieties for themselves should contact [michael.mcdaniel@eastwestseeds.com](mailto:michael.mcdaniel@eastwestseeds.com)

NIAB (National Institute of Agricultural Botany), UK, through a programme initially supported through the British Government, has developed their own high-yielding Artemisia varieties which have been extensively trialled and commercially grown in Asia, East Africa and Madagascar over the past two years. Growers interested in more information and obtaining seeds should contact Colin Hill: [colinhill83@yahoo.com](mailto:colinhill83@yahoo.com) / [colin@lupofreshltd.com](mailto:colin@lupofreshltd.com)



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