AgriFutura

Agribusiness | Phillips McDougall

Topical Insight & Analysis from Phillips McDougall
Feb 2020 No. 243

NOVEL CORONAVIRUS 2019 – VIROLOGY AND IMPACT ON THE AGROCHEMICAL INDUSTRY

Novel coronavirus (2019-nCoV) was first identified during an outbreak of pneumonia in Wuhan City, Hubei Province, China in December 2019. Investigations into the origins of the virus, its pathology and the way it affects humans are ongoing, and the situation is rapidly evolving, with the virus appearing to gain momentum. At present, the World Health Organization (WHO) has declared the outbreak to be a public health emergency of international concern, with the risk assessed as very high in China, high at the regional level and high at the global level.

As part of this report, we aim to provide an overview of the virus and provide our estimates into the impact the outbreak will have on the global agrochemical industry.

TIMELINE AND OVERVIEW OF THE 2019-NCOV OUTBREAK

Epidemiology

- The first atypical case of pneumonia, which we now understand to be a novel coronavirus strain (2019-nCoV), was first reported and confirmed in Wuhan, China on the 31st December 2019, when the WHO was informed of 44 pneumonia cases of unknown microbial origins associated with the area.
- On 9th January 2020, WHO announced that the novel coronavirus from samples of the infected in Wuhan City had not been previously detected in humans.
- As of February 5th, there have been in excess of 20,000 confirmed cases of 2019-nCoV infections in mainland China, an increase of 19.0% from the previous day, including 490 fatalities, an increase of 15.3% on the previous day. The outbreak is still on-going, with the potential of regional and global spread quite likely, and experts expect the numbers to rise in the coming weeks as the infection gains momentum.
- As of the 4th February, almost 200 cases of 2019-nCoV had been diagnosed in 27 other countries, the majority of which attributable to travellers coming from the Hubei Province.

Virology and Etiology

- Coronaviruses are a large family of viruses comprised of a single strand of genetic material, found in birds, mammals and humans, ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and SARS. In comparison to MERS and SARS, it is estimated at present that 2019-nCoV has a significantly lower mortality rate.
- A majority of patients in the initial outbreak in Wuhan City reported a link to Huanan South China Seafood Market, suggesting the virus came from an animal origin, however, the origin of the virus is yet to be confirmed.
- 2019-nCoV is closely related (88% identity) with two bat-derived SARS-like coronaviruses, bat-SL-CoVZC45 and bat-SL-CoVZXC21, collected in 2018 in Zhoushan, Eastern China.

- In order to better predict the possibility of the outbreak becoming more serious, a close eye is being kept on the mutation state of 2019-nCoV, as it is thought a single change at one of two sites on the virus' genome would significantly enhance the virus' ability to bind to human ACE2.
- Human coronaviruses most commonly spread from an infected person to others through respiratory droplets produced when an infected person coughs or sneezes, close personal contact, or touching infected surfaces before touching your mouth or eyes.
- Current estimates of the incubation period, the time between exposure to the infection and the appearance of the first symptoms, range from 2 to 10 days.
- The symptoms of 2019-nCoV, similar to other respiratory coronavirus infections, include a runny nose, headache, cough, sore throat and the single defining factor of all 2019-nCoV infections – a fever.

Treatment

- As of 5th February 2020 no specific treatment or inoculation to prevent the virus exists.
- Reports of fatality are found to have affected those who are older of those with weakened immune systems resulting from underlying health conditions.
- There are currently a number of companies working on a vaccine including Gilead Sciences, Johnson & Johnson, Novavax, Vaxart and Inovio Pharmaceuticals.
- Companies working on monoclonal antibodies as a treatment include Vir Biotechnology, Regeneron Pharmaceuticals, AbCellera Biologics. Monoclonal antibodies will bind to the antigens present on the surface of the virus and remove the virus from a patient's system.

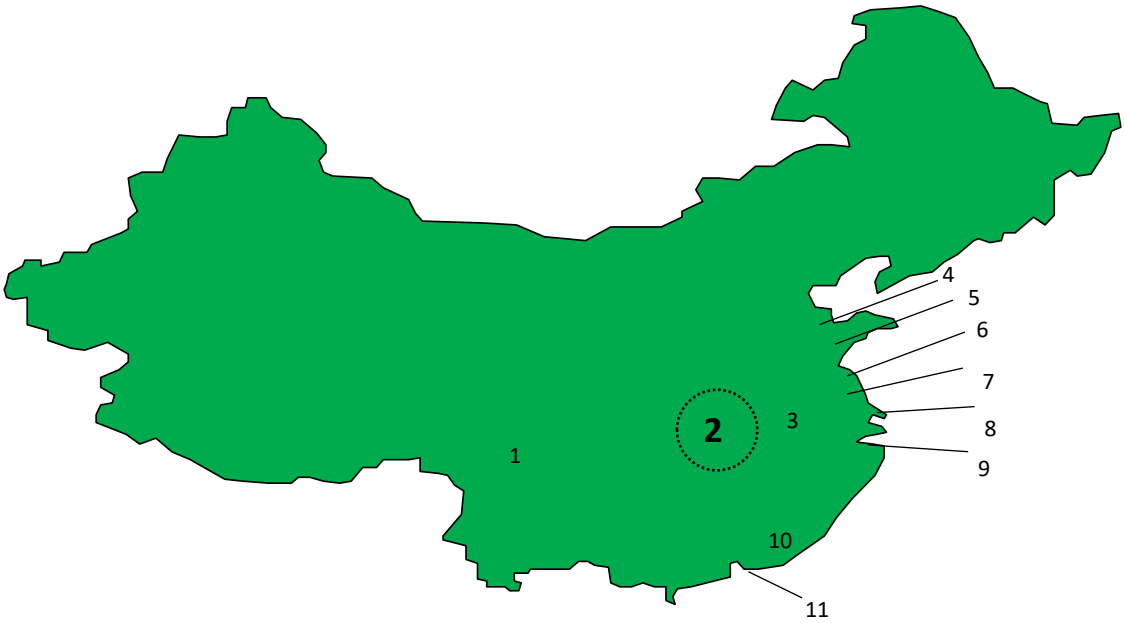
IMPACT ON CHINESE ECONOMY AND AGROCHEMICAL INDUSTRY

According to an article published by IHS Markit on the 5th February discussing the impact of the novel Coronavirus on the Chinese auto market, an estimate showing a 1.1% decline in China's real GDP is provided. This estimate was based on comparisons against the SARS epidemic of 2002-2003 which occurred in Guangdong province, a region with a significantly greater share of the country's economy than Hubei, ground zero for the current outbreak. Having said this, a previous report from IHS Markit noted that Hubei is a major transport hub in central mainland China, providing some concern regarding logistics across the region. The number of fatalities across the globe has also exceeded that of SARS, suggesting a potentially greater impact on the Chinese economy despite the lower mortality rates recorded for 2019-nCoV. In addition, the Chinese economy has grown significantly since the early 2000s and therefore any decline in GDP will have a greater impact on the global situation.

With regards to the agrochemical landscape, last year in the AgriService Company section, Phillips McDougall identified 24 agrochemical companies from Greater China (Chinese mainland and Hong Kong) with sales great enough to be ranked in the top 50. It should be noted that local subsidiaries of the major multinationals are not included in this figure; i.e. Bayer CropScience China Co. Ltd. who have sales of an estimated $318 million in 2018. In addition, international companies owned by Chinese businesses such as ADAMA and Syngenta are not included as separate entities.

The below map displays the headquarter location of the companies covered in this report; the companies are based in 11 key provincial hubs, generally clustered along the eastern seaboard of China given the geographic convenience for oceanic trade. The provinces include Anhui, Beijing, Hubei, Jiangsu, Nantong, Shandong, Shanghai, Shandong, Shenzhen, Sichuan and Zhejiang.

MAJOR CHINESE PLAYERS



1. Sichuan Province is the province where Fuhua Group, Lier Chemical and Sichuan Hebang Biotechnology are headquartered
2. Hubei Xingfa are located in Hubei Province, the origin of 2019-nCoV
3. Anhui Guangxin Agrochemical is based in Anhui Province
4. Nutrichem is based in Beijing
5. Shandong Province is the headquarter location for Shandong Weifang Rainbow Chemical, Shandong Binnong Technology and Hailir Pesticides and Chemicals Group
6. Jiangsu Province is home to Red Sun, Jiangsu Yangnong Chemical, Lianyungang Liben Agro-chemical, Jiangsu Huifeng Agrochemical, Jiangsu Sevencontinent Green Chemical, Jiangsu Changqing Agrochemical and Jiangsu Zhongqi Tech
7. Nantong Jiangshan Agrochemical & Chemicals and CAC Nantong Chemical are headquartered in Nantong Province
8. Sinochem International is based in Shanghai
9. Zhejiang Province is home to Wynca, Lianhe Chemical Technology and Zhejiang Zhongshan Chemical Industry Group
10. Shenzhen Province is where Shenzhen Noposion Agrochemicals are located
11. Location labelled 11 refers to the non-Chinese mainland-based company Rotam who are headquartered in Hong Kong

Of these companies alone, combined agrochemical sales in 2018 are estimated to be approximately $12 billion, highlighting the importance of Chinese manufacturers to the industry. The influence of such businesses has been highlighted from 2017 when a mandate was imposed by the Chinese government under which chemical companies were required to invest in costly pollution control and effluence treatment plants. This drove down production in the country and hence improved the price of key generics, notably so for glyphosate. In addition, financial pressures are being experienced by the increasing number of Chinese companies which are listing on the local stock markets and therefore under pressure to display improved profitability boosting prices emanating from the country. This had a knock-on effect across the industry, boosting prices globally, helping to drive crop protection market growth in 2018 of 6.0% over the previous

year to reach an estimated $57,561 million. In addition, sales of agrochemical used in non-crop situations are estimated to have increased by 3.1% during the year to reach $7,538 million.

Despite the minor share of major agrochemical manufacturers based in Hubei province, we do expect a reduction in manufacturing, albeit limited, due to the extended Spring/New Year holiday in an attempt to control the spread. Indeed, governments in a number of provinces, notably Anhui, Jiangsu, Shandong, Shanghai and Zhejiang, have advised businesses not to return to work until after the 9th February – reflecting an additional week of lost production. This delay, if adhered to and not further extended, would likely impact annual production by between 1%-2%. Some reports do, however, suggest that production in a number of industrial hubs has not stopped during the holiday period, further limiting the impact to global supplies and prices.

In addition, it was discussed in Agrow on the 6th January 2020 that following an explosion in March 2019, a number of manufacturers located at the Chenjiagang Industrial Park in Jiangsu Province are yet to resume operations; this includes Jiangsu Huifeng Agrochemical who Phillips McDougall rank as 46th most significant crop protection company with sales of $294 million in 2018. As a result, many of the businesses planned to relocate to other provinces including Inner Mongolia and Ningxia. Reports suggest that many pesticide technical manufacturers in such areas have continued to work in a normal production state.

CONCLUSION

Overall, as a preliminary estimate, we predict that the current outbreak of 2019-nCoV will not pose a significant, long-lasting impact on the Chinese, or global, agrochemical markets. This conclusion is based on the assumption that manufacturing will resume across the major hubs on the 9th February, resulting in only one week of production being lost. In addition, the relatively low fatality rates compared to similar outbreaks in recent years (i.e. SARS) should limit the impact to the Chinese economy. It is of course too early to provide accurate insight and the analysts at Phillips McDougall will be watching the situation closely.

Only time will tell if the government's response in mitigating the spread through the quarantine being enforced in Wuhan and travel restrictions across the country, as well as the cancelation of major events, will be effective in controlling the outbreak.

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