Impact of Climate Change Induced by Global Weather Engineering Technology of "Chemtrails" on Plant Protection

Article · April 2018

DOI: 10.22268/AJPP-036.1.080085

1 author:

Monir Mohamed El-Hussieni
Cairo University

Impact of climate change induced by global weather engineering technology of "chemtrails" on plant protection

Monir M.M. El Husseini
Faculty of Agriculture, Cairo University, Egypt, Email: monir.elhusseini@agr.cu.edu.eg

Abstract

El-Husseini, M.M.M. 2018. Impact of climate change induced by global weather engineering technology of "chemtrails" on plant protection. Arab Journal of Plant Protection, 36(1): 80-85.

Weather engineering scientists developed a new chemtrail technology applied by jets in the stratosphere for decreasing the global warming. It is based on building synthetic chemical clouds of aluminum oxide as Welsbach particles to reflect the heat coming from the sun back in the upper atmosphere, and thus cooling the air on earth. The applied aerosol mixture contains also nanoparticles of barium monoxide which react with CO2 when reaching the troposphere turning into barium carbonate and bicarbonate leading to minimization of its content in the atmosphere on the long run. In 2000, the UN approved the first global weather engineering project in the history of mankind to combat the global warming by chemtrail technology for the period from 2000 to 2050. This project decreased the global warming but induced undesirable climate changes over many areas on the planet that affected the natural balance between pests and their natural enemies. Thus, it affects strategies of pest control and plant protection in agriculture as well as in forestry, human and veterinary pests as recorded in the last two decades. These effects could be summarized in the following: 1) Creation of completely new wind directions by induced new air depressions as in 2004 which changed swarm direction of the desert locust autumn generation to invade north Africa for the first time, thus changing its usual control strategy, 2) Dehydration of certain ecosystems through the aluminum oxide as appeared in Australia 2009 destroying range land cattle production and leading to absence of both plant pests and their natural enemies, 3) Charging giant air electric fields leading to more lighting that induced wild fires in dehydrated forests, field crops and range land which were recorded in many countries. Thereafter, forest pests outbreaks and needs to be controlled until resurgent of their natural enemies, 4) Increasing frequency and empowering the natural disasters by seeding air with precipitation nuclei causing floods that damaged many crops as recoded also in different countries. Such floods are followed by outbreaks of mosquitoes and transmitted diseases, 5) Cooling upper air layers over warm water areas causing hurricanes, tornadoes, and building heavy snow and hail, the latter has shilling or destructive effect on certain crops and animal production in arid and semi-arid zones as in 2008 in KSA and some Asian countries, and 6) Decreasing air visibility due to suspended chemtrail particles in the air and creation of extreme heat waves when reflecting the heat back to earth by aluminum oxide affecting crops sensitive to high temperatures as well as killing the newly hatched lepidopterous larvae leading to save control measures as in case of the cotton leaf worm in Egypt.

Introduction

Global warming is the increase in the average temperature of earth's atmosphere and oceans due to the increase of greenhouse gas concentrations. The scientific consensus is that the sudden increase in temperature over the last 50 years is due to natural cycle that has been exacerbated by human activity such as burning of fossil fuels including petroleum, coal and to a lesser extent natural gas.

The effects of anthropogenic climate change are now being felt in all terrestrial ecosystems. This phenomenon showed impacts on several aspects of insect biology and ecology that will affect in different ways plant and animal production, forestry, fishery, air and arthropod borne diseases. In 2008, the Royal Entomological Society, UK (18), addressed important issues concerning the climate change including the creation of conditions that may lead to the ingress of invasive species, changes in insect distributions and loss of habitat. Furthermore, changes in phenology may have widespread impacts as a given insect's occurrence becomes asynchronous with host plant or breeding site. Similarly, crop pests and the complex of parasitoids, predators and pathogens that regulate their populations may increasingly fail to co-occur, leading to perturbations in biological control. For some species, *e.g.*, the tropical insects, as the planet warms there will be simply nowhere to go and extinction beckons. The precise impacts of climate change on insects and pathogens is somewhat uncertain because some climate changes may favor pathogens and insects while others may inhibit a few insects and pathogens. The preponderance of evidence indicates that there will be an overall increase in the number of outbreaks of a wider variety of insects and pathogens.

On the other side, investigators and researchers around the globe have been hardly searching for solutions to decrease the "Global Warming Phenomenon" or "Greenhouse Warming". International agreements has been signed to reach this goal in the last two decades, *e.g.* the "Kyoto protocol" signed 1997 in Japan by nearly all countries except 5, including USA and Russia due to high costs of decreasing emission of CO_2 (carbon cutback) resulting from burning energy material, *i.e.*, oil and charcoal. In USA, the climatologists David Shang and I Fu Chi (6) patented a chemical solution for decreasing the global warming depending on the aluminum oxide nanoparticles

* This symposium was sponsored by the FAO Near East and North Africa Regional Office, and organized as part of the 12th Arab Congress of Plant Protection held in Hurghada, Egypt, 5-9 November 2017.

http://dx.doi.org/10.22268/AJPP-036.1.080085

(Welsbach particles) that can reflect about 2% of the sun heat back in the space when seeded by jets in the stratosphere. In a special international meeting under the umbrella of the United Nations in 2000, the USA presented the positive results recorded after application of this weather engineering technique over the entire American continent during the period from 1991 to 2000 that decreased the warming by 70-80%. Then, USA offered the international community a global project “The Shield Project” that priced the aerial spray program at US$ 1 billion dollars a year for 50 years (2000-2050) without financial sharing of any country. The project was approved by the UN gathering after involving the WHO as many environmentalists were concerned with the side effects of such chemicals and other material of the sprayed aerosol on humans when settled from the stratosphere to the troposphere on earth (19). From the time this technology "chemtrails" is globally in application, it created severe altering in the weather allover the planet causing an increase in the frequency, duration and intensity of extreme weather events such as droughts, tornadoes, floods, forest fires, snow and heat waves. Such weather altering will definitely pose impacts on the different agro-ecosystems leading to disturbances between pests and their natural enemies which necessitates changes in plant protection strategies.

Global warming and plant pathogens and diseases

Temperature has potential impacts on plant diseases through both the host crop plant and the pathogen. Research has shown that host plants such as wheat and oats become more susceptible to rust diseases with increased temperature; whereas some forage species become more resistant to fungi with increased temperature (4). Many mathematical models that have been useful for forecasting plant disease epidemics are based on increases in pathogen growth and infection within specified temperature ranges. Generally, fungi that cause plant disease grow best in moderate temperature ranges. Temperate climate zones that include seasons with cold average temperatures are likely to experience longer periods of temperatures suitable for pathogen growth and reproduction if climates warm (15). For example, predictive models for potato and tomato late blight (caused by *Phytophthora infestans*) show that the fungus infects and reproduces most successfully during periods of high moisture that occur when temperatures are between 7.2ºC and 26.8ºC (4, 13, 20). Earlier onset of warm temperatures could result in an earlier threat from late blight with the potential for more severe epidemics and increases in the number of fungicide applications needed for control.

Climate change and insects

Insects are cold-blooded organisms - the temperature of their bodies is approximately the same as that of the environment. Therefore, temperature is probably the single most important environmental factor influencing insect behavior, distribution, development, survival, and reproduction. Insect life stage predictions are most often calculated using accumulated degree days from a base temperature and biofix point. Some researchers believe that the effect of temperature on insects largely overwhelms the effects of other environmental factors (3). It has been estimated that with a 2ºC temperature increase, insects might experience one to five additional life cycles per season. Other researchers have found that moisture and CO2 effects on insects can be potentially important considerations in a global climate change setting (5, 11, 14).

Climate change resulting in increased temperature could impact crop pest insect populations in several complex ways. Although some climate change temperature effects might tend to depress insect populations, most researchers seem to agree that warmer temperatures in temperate climates will result in more types and higher populations of insects. Researchers have shown that increased temperatures can potentially affect insect survival, development, geographic range, and population size. Temperature can impact insect physiology and development directly or indirectly through the physiology or existence of hosts. Depending on the development “strategy” of an insect species, temperature can exert different effects (3). Some insects take several years to complete one life cycle – these insects (cicadas, arctic moths) will tend to moderate temperature variability over the course of their life history.

Some crop pests are “stop and go” developers in relation to temperature – they develop more rapidly during periods of time with suitable temperatures. We often use degree-day or phenology based models to predict the emergence of these insects and their potential to damage crops (cabbage maggot, onion maggot, European corn borer, Colorado potato beetle). Increased temperatures will accelerate the development of these types of insects – possibly resulting in more generations (and crop damage) per year.

“Migratory” insects (corn earworm in northern parts of the northeast) may arrive in the Northeast of USA earlier, or the area in which they are able to overwinter may be expanded. Natural enemies and host insect populations may respond differently to changes in temperature.

Parasitism could be reduced if host populations emerge and pass through vulnerable life stages before parasitoids emerge. Hosts may pass though vulnerable life stages more quickly at higher temperatures, reducing the window of opportunity for parasitism. Temperature may change gender ratios of some pest species such as thrips (16) potentially affecting reproduction rates. Insects that spend important parts of their life histories in the soil may be more gradually affected by temperature changes than those that are above ground simply because soil provides an insulating medium that will tend to buffer temperature changes more than the air (3).

Lower winter mortality of insects due to warmer winter temperatures could be important in increasing insect populations (12). Higher average temperature might result in some crops being able to be grown in regions further north – it is likely that at least some of the insect pests of those crops will follow the expanded crop areas. Insect species diversity per area tends to decrease with higher latitude and altitude (1, 10), meaning that rising temperatures could result in more insect species attacking more hosts in temperate climates (3).

Based on evidence developed by studying the fossil record, some researchers (3) concluded that the diversity of insect species and the intensity of their feeding have increased historically with increasing temperature.

On the other hand, increased temperature could decrease pest insect populations. Some insects are closely tied to a specific set of host crops. Temperature increases that cause farmers not to grow the host crop any longer would decrease the populations of insect pests specific to those crops. The same environmental factors that impact pest insects can impact their insect predators and parasites as well as the disease organisms that infect the pests, resulting in increased attack on insect populations. At higher temperatures, aphids have been shown to be less responsive to the aphid alarm pheromone they release when under attack by insect predators and parasitoids – resulting in the potential for greater predation (2).

Interference of man through weather engineering

In 1991, the USA scientists Shang and Chi (6) received the agreement for their patent USA # 5003186 entitled “Stratospheric Welsbach seeding for reduction of global warming”. It depends on dispensing microscopic particles of aluminum oxide and barium salts as heat reflective material (Welsbach particles) into the upper atmosphere (the stratosphere) to reflect one or two percent of in coming sun light and heat back into the space.

Computer simulations designed by Ken Caldeira at the military Lawrence Livemore National Laboratories founded by Edward Teller (Father of the atomic- and H-bomb of the Manhattan’s Project) calculated that application of Shang;s and Chi’s patent would be enough to stop warming over 85% of the planet. Lawrence Livemore priced the aerial spray around the globe at US$ 1 billion dollars/year, which is a cheap fix to maintain massive petroleum profits in the face of Kyoto’s internationally agreed carbon cutbacks. Livemore’s founder, Dr. Edward Teller, lobbied hard for the “Shield Project”. At the 1998 international seminar on planetary emergencies, he presented his next big idea for "reflective chemicals" (Welsbach sizes) to be spread like mirror-shades over the earth into the stratosphere using jets. The chemicals and other components mixed in oil and released from large nozzles just behind the jet engines where the powerful exhaust blows it in hundred or thousand kilometer long trails (Figure 1).

In 2000, The USA called for an international gathering of climatologists under the umbrella of the United Nations to present the positive results in decreasing the air temperature over the entire USA by geoengineering through seeding the stratosphere by Welsbach chemical particles (aluminum oxide and barium salts) according to the patent of Shang and Chi (6). The “50-years Shield Project” of Edward Teller was presented and proposed as an effective global solution for the global warming phenomenon; and that the US$ 50 billion dollars cost of the project are totally sponsored by the USA. The project included some international flight companies through contracts to provide the jets with the tanks and spraying system of the chemtrails. The satellites images will help the project control center located in the USA Ministry of Defense (in the Pentagon) to give orders to the involved jets to release the chemtrails on their defined normal flight directions to cover the planet with this chemical shield to decrease the global warming. As many of the participated environmentalists expressed their worries from the side effects of such global chemical application in the atmosphere on human health, the World Health Organization (WHO) was engaged in the project to watch this aspect. And thus, the project was internationally approved and started the global application beginning over the Antarctic to cool the air and to slower melting of the ice mountains. It is the first global applied project in history of mankind.

Figure 1. Weather engineering by chemtrails sprayed by jets in the stratosphere for decreasing global warming.

Potential consequences of weather engineering using chemtrails

***Creation of new wind directions* -** formation of air low pressure zones resulted from the sudden cooling of air and leading to shrinkage of giant large air volumes over millions of km^2 creating a new low pressure zone. This could affect the air carrying swarms of the desert locust to bring them in countries from new directions as happened in Egypt and North Africa in autumn 2004. In 2004, the application of chemtrails reached the Mediterranean region and North Africa (7). The jets were seen leaving their white chemical trails extending from one side of the horizon to the other as watched over Egypt (Figure 1). After a few hours, the sprayed chemtrails begin to disperse to both sides along the lines to form a thin dust long clouds that closed gradually together and later on became as one giant cloud over the whole region extending over many countries reflecting the sun light and heat back into the space resulting a significant rapid decrease in the air temperature (in Egypt at the 1st day of application it decreased from 34 to 15°C).

***More lighting* -** large electric fields are formed by friction of the chemical particles when blazed by the strong exhaust of the jet engines. They could be discharged either naturally or by Radio Ultra Low Frequencies (RULF) and the resulting lighting may cause more destruction of fauna and flora in forests by fire as recorded in many countries especially in Australia in 2009. Moreover, lighting could kill people present in open fields, *e.g.*, farmers in their fields as happened in Egypt (8).

***Dehydration of the ecosystem* -** the sprayed aluminum oxide absorbs the air humidity in a chemical reaction turning into aluminum hydroxide. After few months of continuous application, the relative humidity (%) in the ecosystem decreased significantly (reached 10-12% in Egypt at some days of summer 2007). Thus, it negatively affects the development of fungal diseases attacking plant vegetative parts.

***Empowering the natural disasters* -** hurricanes, tornados and flooding will be more frequent and strong. The presence of the chemtrail fine chemical particles in the air will act as nuclei for precipitation when the natural clouds reached them. The recent floods in the UK, European countries, USA, Africa and the Caribbean region are evident for such consequence. Mosquitos populations increase after floods causing health problems to human and farm animals by transmitting diseases.

Decreasing the visibility -when chemtrails reach the troposphere, the suspended chemical particles in the air decreased both horizontal and vertical visibility causing problems to ground as well as to flight and marine traffic. The decreased light intensity could negatively affect the photosynthesis in the plants.

***Health problems* -** due to inhalation of the aluminum oxide that turned into hydroxide on the humid binding tissues in eyes, nose and chest causing irritation and allergic reactions to large number of people.

In relation to the aforementioned potentials of weather engineering on the climate and those for global warming, Rosenzweig *et al.* (17) reported the following in the USA:

- Since the 1970s, U.S. agriculture has achieved enhanced productivity, but has also experienced greater variability in crop yields, prices, and farm income. The changes in variability are, in part, climate-related, either directly (through extreme weather events) or indirectly (due to agricultural pests and diseases).
- Extreme weather events have caused severe crop damage and have exacted a significant economic toll for U.S. farmers over the last 20 years. Total estimated damages, of which agricultural losses are a part, from the 1988 summer drought were on the order of $56 billion (normalized to 1998 dollars using an inflation wealth index), while those from the 1993 Mississippi River Valley floods exceeded $23 billion.
- Both pest damage and pesticide use have increased since 1970. Nationally, in the 1990s, pests were estimated to have destroyed about one third of our crops, in spite of advances in pest control technology over the last half century.
- The ranges of several important crop pests in the U.S., including the soybean cyst nematode [the most destructive soybean pest in the U.S.] and corn gray leaf blight [the major disease causing corn yield losses] have expanded since the early 1970s, possibly in response, in part, to climate trends.
- Pest and disease occurrences often coincide with extreme weather events and with anomalous weather conditions, such as early or late rains, and decreased or increased humidity, which by themselves can alter agricultural output. Recent climate trends, such as increased nighttime and winter temperatures, may be contributing to the greater prevalence of crop pests. With regard to the potential future effects from climate change on U.S. agriculture, the following factors are highlighted.
- Expected temperature increases are likely to hasten the maturation of annual crop plants, thereby reducing their total yield potential, with extremely high temperatures causing more severe losses. Des Moines, Iowa, in the heart of the Corn Belt, currently experiences fewer than 20 days per year with temperatures exceeding 90ºF. The number of days with temperatures above 32ºC would double with a mean warming of 2.0ºC.
- Climate change projections include an increased likelihood of both floods and droughts. Variability of precipitation--in time, space, and intensity--will make U.S. agriculture increasingly unstable and make it more difficult for U.S. farmers to plan what crops to plant and when.
- Higher temperatures and greater precipitation in some regions are likely to result in the spread of plant pests and diseases. Higher temperatures reduce insect winterkill, and lead to increased rates of development and shorter times between generations. Wet vegetation promotes the germination of spores and the proliferation of bacteria, fungi, and nematodes. Prolonged droughts can encourage other pests and diseases; especially those carried by insects.
- Increased crop pests may necessitate intensified use of agricultural chemicals that carry long-term health, environmental, and economic risks.
- While the majority of weeds are invasive species from temperate zones, the distribution of others, which originate in tropical and subtropical regions, may spread with warmer temperatures. In the U.S. during the 1980s, annual losses in crop production due to weeds have been valued at approximately $12 billion, amounting to losses of some 10% of potential production.
- Climate change, with preferential warming at high latitudes, in winter and at night, is likely to shift the ranges of optimal production centers for specific crops. Such changes in agricultural zones and in productivity may lessen the comparative advantage that the U.S. now enjoys as a leading international exporter of major agricultural commodities.
- The combination of long-term change (warmer average temperatures) and greater extremes (heat spells, droughts and floods) suggest that climate change could have negative impacts on U.S. agricultural production. Economic losses in some U.S. agricultural regions could

rise significantly due to greater climate variability, and to increases in insects, weeds, and plant diseases.

It is now widely accepted that climate change is taking place. Predictions made using different climate change scenarios suggest that it will become warmer in the future by the 2080s, the mean average temperature may increase by between 2 and 3.5°C. High summer temperatures will become more frequent and very cold winters will become increasingly rare. Winters will become wetter and summers may become drier everywhere.

While it is difficult to assess all the mechanisms causing the impact of climate change on the occurrence of pests and diseases, there is evidence that it will affect the patterns and processes of invasion and incidence and intensity. Therefore, FAO (9) organized an expert meeting that focused on the following lead questions in order to challenge the approaching problems in pest control with emphasis on the trans-boundary pests:

- Does the present knowledge in invasion ecology science provide the adequate basis to assess the forcing of climate change on pests and diseases (animals, plants, forests, and aquatic species)?
- Can we predict how climate change will affect the emergence and spread of diseases and pests, and how can the effects of climate change on trans-boundary diseases and pests be separated from other effects (like spread through expanding transportation networks, drug and pesticide resistant pathogens)?
- What will be the impact of changes in animal and plant diseases on the food security of different population groups and can we identify more vulnerable situations where trans-boundary diseases and pests lead to significant destabilization of supplies and to decrease in production or access to food?
- What are necessary future research activities (with emphasis on interdisciplinary) that could better clarify and quantify possible connections between climate change, ecosystems and the transmission of disease agents, and their consequences for plant and animal pests and diseases?
- Will relevant governments agencies and relevant Intergovernmental Organizations need to adjust to be able to cope with the effects and consequences of climate change on trans-boundary pests
- The strengths and weaknesses of the relevant government and intergovernmental institutions, and the identification of priority action and its possible funding were assessed and analyzed.

الملخص

الحسيني، منير محمد. 2018. تأثيرات التغيرات المناخية المستحدثة على مستوى كوكب الأرض بالهندسة المناخية بتقنية "كيمتريل" في وقاية النبات. مجلة وقاية النبات العربية، 36(1): 80-85.

ابتكر علماء هندسة الطقس تقنية "كيمتريل" جديدة لبث مركباتها النانوكيماوية بالطائرات النفاثة في طبقة الاستراتوسفير لتقليل الحترار الكوني يرتكز على استحداث سحب من أكسيد الألومينيوم تعمل كمرآة تعكس الحرارة القادمة من الشمس إلى الفضاء الخارجي، مما يقلل من حرارة الهواء على سطح الأرض. كما يحتوي خليط الأيرسول المستخدم أيضا على أول أكسيد الباريوم الذي يقوم عند هبوطه إلى طبقة التروبوسفير بالاتحاد كيماويا مع غاز ثاني أكسيد الكربون المسبب الرئيس لظاهرة الانحباس الحراري مكونا لأملاح كربونات وبيكربونات الباريوم التي تعمل على تقليل هذا الغاز في الغلاف الهوائي على المدي البعيد. وقد وافقت الأمم المتحدة عام 2000 على أول مشروع كوني في تاريخ البشرية لتقليل الانحباس الحراري بتقنية "كيمتريل" بدأ تنفيذه على مستوى الكرة الأرضية ولمدة 50 عام حتى عام 2050. ورغم نجاح التقنية في تبريد الغلاف الهوائي إلا أنها أحدثت تغيرات مناخية غير مرغوبة في الطقس سجلت في عديد من مناطق العالم أثرت في التوازن الطبيعي بين الآفات وأعدائها الطبيعيةوأثرت بالتالي في استراتيجيات مكافحة الآفات ووقاية النباتات في الزراعة والغابات أيضاً وفي صحة الإنسان والآفات البيطرية المسجلة في العقدين الأخيرين،. ويمكن إيجاز التأثيرات الجانبية لتقنية "كيمتريل" فيما يلي: 1) استحداث اتجاهات جديدة تماما للرياح بسبب التبريد الشديد والمفاجيء لطبقات الهواء العليا مكونة للمنخفضات الجوية التي يتولد عنها تحركات للرياح لم تعرف من قبل، كما حدث في خريف عام 2004 مؤدية لسحب أسراب الجراد الصحراوي من شمال غرب إفريقيا باتجاه الشرق للمرة الأولى في تاريخ مسار أسراب الجراد الصحراوي ليغزو كل الشمال الإفريقي ودول أسيوية حتى إيران، ولم تكن هذه الدول مستعدة أو معتادة لمكافحة هذا الغزو الجديد من الشرق في هذا التوقيت من العام. 2) جفاف بعض الأنظمة الإيكولوجية بسبب امتصاص الرطوبة الجوية في تفاعل كيماوي مع سحب وغلالات أكسيد الألومينيوم متحولا لهيدروكسيد ألومينيوم، حيث يقضي الجفاف الشديد على الفلورا وبالتالي على الفونا من الحشرات وأعدائها الطبيعية ، يتلوها فوران لمجتمعات الآفات يسبق أعداءها الطبيعية مما يستلزم بالضرورة استخدام المكافحة الكيماوية لوقاية النبات كما حدث في استراليا عامي 2009، 2010. 3) استحداث وشحن حقول كهربائية غاية في الضخامة، تتسبب عند تفريغها في البرق والصواعق مؤدية لحرائق في المحاصيل والغابات وأراضي المراعي التى جفت بسبب تقنية "كيمتريل" وبالتالي القضاء على الفلورا والفونا مما يستلزم تصميم استراتيجيات لوقاية النباتات لمجابهة فورانات الآفات الحشرية السابقة لتعدادات أعدائها الطبيعية خاصة في الغابات وبساتين الفاكهة لحين عودة أعدائها الطبيعيين. 4) زيادة معدلات حدوث وشدة الكوارث الطبيعية بالفيضانات، حيث تعمل الجزيئات الدقيقة لكيماويات الـ "كيمتريل" كنويات تكثيف على السحب الطبيعية مؤدية لاستمطارها بالكامل على مساحات محددة في وقت قصير مستحدثة لفيضانات عارمة تستلزم وضع استراتيجيات لوقاية النبات ومكافحة الفورانات التالية للبعوض الناقل لأمراض الإنسان والحيوان. 5) يؤدي التبريد الشديد لطبقات الهواء العليا فوق الخلجان الدافئة لاستحداث الأعاصير المدمرة كما حدث إبتداء من عام 2005 وحتى الآن في تلك المناطق، حيث تنقل أمراض النبات والحشرات بتلك الرياح الشديدة على غير المعتاد لمناطق أخري على

مسافات بعيدة تتطلب مواجهتها بوسائل مكافحة مناسبة. 6) يستحدث التبريد الشديد سقوط الثلوج وكرات البرد في المناطق الجافة ونصف الجافة غير المعتادة عليها مسببة أضراراً اقتصادية للثروات النباتية والحيوانية كما حدث في المملكة العربية السعودية عام 2008، مما يتطلب الاحتراز من تكرارها مستقبلاً بوضع استراتيجيات مناسبة لوقاية النبات والحيوان. 7) استحداث الموجات شديدة الحرارة على سطح الأرض (الموجات الحارة القاتلة)، ولها ميزة في قتل الفقس الحديث ليرقات حرشفية الأجنحة مثل دودة ورق القطن مما يوفر نفقات مكافحتها التي تتم عادة بجمع لطع البيض باليد أو بالرش بالمبيدات الحشرية كما حدث في مصر عام 2010.

عنوان المراسلة: منير محمد الحسيني، كلية الزراعة، جامعة القاهرة، مصر، البريد الإلكتروني: monir.elhusseini@agr.cu.edu.eg

References

1. **Andrew, N.R. and L. Hughes.** 2005. Diversity and assemblage structure of phytophagous Hemiptera along a latitudinal gradient: predicting the potential impacts of climate change. Global Ecology and Biogeography, 14: 249-262.
2. **Awmack, C.S., C.M. Woodcock and R. Harrington.** 1997. Climate change may increase vulnerability of aphids to natural enemies. Ecological Entomology. 22: 366-368.
3. **Bale, J.S. G.J. Masters, I.D. Hodkinson, C. Awmack, T.M. Bezemer, V.K. Brown, J. Butterfield, A. Buse, J.C. Coulson, J. Farrar, J.E.G. Good, R. Harrington, S. Hartley, T.H. Jones. R.L. Lindroth, M.C. Press, I. Symrnioudis, A.D. Watt and J.B. Whittaker.** 2002. Herbivory in global climate change research: direct effects of rising temperatures on insect herbivores. Global Change Biology, 8: 1-16.
4. **Coakley, S.M., H. Scherm and S. Chakraborty.** 1999. Climate Change and Disease Management. Annual Review of Phytopathology, 37: 399-426.
5. **Coviella, C. and J. Trumble.** 1999. Effects of elevated atmospheric carbon dioxide on insect plant interactions. Conservation Biology, 13: 700-712.
6. **Shang, D. and I.F. Chi,** 1991. Stratospheric Welsbach seeding for decreasing Global warming. US patent # 5003186.
7. **El-Husseini, M.M.** 2004. Latest locust invasion in Egypt in relation to new wind directions caused by applications of chemtrails of the Shield Project for decreasing Global Warming. Symposium on the recent locust invasions, December 12, 2004, Dokki, Giza, Egypt. 24 pp.
8. **El-Husseini, M.M.** 2006. Chemtrals used for decreasing the global warming and their side effects on environment and health. The 1st International Forum on Environment, Tanta University, Egypt.
9. **FAO.** 2008. Climate-related transboundary pests and diseases, including relevant aquatic species. 25-27 February, 2008
10. **Gaston, K.J. and P.H. Williams.** 1996. Spatial patterns in taxonomic diversity. Pages 202-229. In: Biodiversity: a biology of numbers and difference. K.J. Gaston (ed.). Blackwell Science, Oxford.
11. **Hamilton, J.G., O. Dermody, M. Aldea, A.R. Zangerl, A. Rogers, M.R. Berenbaum and E. Delucia.** 2005. Anthropogenic changes in tropospheric composition increase susceptibility of soybean to insect herbivory. Environmental Entomology, 34: 479-485.
12. **Harrington, R., R. Fleming, I.P. Woiwood.** 2001. Climate change impacts on insect management and conservation in temperate regions: can they be predicted? Agricultural and Forest Entomology 3: 233-240.
13. **Hijmans, R.J., G.A. Forbes and T.S. Walker.** 2000. Estimating the global severity of potato late blight with GIS-linked disease forecast models. Plant Pathology, 49: 697-705.
14. **Hunter, M.D.** 2001. Effects of elevated atmospheric carbon dioxide on insect-plant interactions. Agricultural and Forest Entomology, 3:153-159.
15. **Kaukoranta, T.** 1996. Impact of global warming on potato late blight: risk, yield loss, and control. Agriculture and Food Science in Finland, 5: 311-327.
16. **Lewis, T.** 1997. Thrips as crop pests. CAB International, Cambridge: University Press. 740 pp.
17. **Rosenzweig, C., A. Iglesias, X.B. Yang, P.R. Epstein and E. Chivian.** 2008. Climate Change and U.S. Agriculture: The Impacts of Warming and Extreme Weather Events on Productivity, Plant Diseases, and Pests. Published by Center For Health And The Global Environment, Harvard Medical School, 260 Longwood Avenue, Room 262A, Boston, MA 02115.
18. **Royal Entomological Society.** 2008. Symposium on Climate Change and Insects. UK.
19. **Stetter, Gabriel.** 2004. Die Zerstörung des Himels - Globales Chemie-Verbrechen in der Atmosphäre, Raum & Zeit, No.127.
20. **Wallin, J.R. and P.E. Waggoner.** 1950. The influence of climate on the development and spread of *Phytophthora infestans* in artificially inoculated potato plots. Plant Disease Reporter Supplement, 190: 19-33.