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Utility of pollen information searchers in internet in the context of prevention of seasonal allergy

One of the most common allergens in Ukraine is ragweed pollen. It intervened here from the American continent a hundred years ago. The most ragweed-contaminated regions are Kherson, Odessa, Mykolaiv, Zaporizhia, Donetsk, Dnipropetrovsk, and Kirovohrad regions. According to our preliminary data, approximately 40% of people with hay fever are susceptible to ragweed. And it is believed that this percentage will increase. This is associated with the deterioration of ecological and climatic conditions, which, in turn, impair the immunity of the population. Also, climate changes and air pollution increase the allergenicity of pollen and promote the expansion of ragweed over the Ukrainian territory.

To determine, the population of which regions are most likely to suffer from allergy symptoms during the ragweed pollen season and how these symptoms may coincide with ragweed pollination timing, we analyzed queries by words “ragweed” on Internet resources, including Google Trends of Google Analytics, as well as on the Allergy.org.ua website – according to the word “allergy forecast”. The information was collected for the period 2017-2021 years.
To determine the seasonality and peak periods of Ambrosia pollination, data on the airborne ragweed pollen concentrations in Ukraine, obtained by the Laboratory for the Allergenic Environmental Factors Investigation of the National Pirogov Memorial Medical University, Vinnytsya, were used.

According to aerobiological data, there are two peaks of activity for ragweed in Ukraine: mid-late August and early-mid-September. These peaks coincided with the increase in the number of requests for ragweed information on Internet resources, including Google Trends and the website Allergy.org.ua.
According to the analysis of search engine queries, the following data were obtained. The peak of the requests for information about ragweed and allergic reactions to it occurred in 2017 on August 23-29 and September 3-9; in 2018 – on August 26 – September 1; in 2019 – on August 4-10 and on August 18-24; in 2020 – on August 23-29 and on August 30-September 5; in 2021 – on August 15-21 and on August 29-September 4. This coincides with the peak periods of ragweed pollination.
Also, the peak of inquiries for pollen forecast traditionally was the highest during the first week of September, which reflects the importance of ragweed allergy in Ukraine.
The highest number of inquiries regarding the word “ragweed” in Ukrainian (more than 50 % of all) was observed in Odesa (it took 100 %), Kyiv, Mykolaiv, Lugansk, Kherson, Cherkasy, Sumy, and Kharkiv regions. Requests in Russian reflected the same picture. It coincides with the known excessive spread of Ambrosia in these regions, except Cherkasy and Kyiv. The rise in the number of requests on Ambrosia in these 2 regions may reflect both active invasion of ragweed to the Center and, consequently, North of Ukraine and the suffering of people from seasonal allergy, which is not necessarily caused by ragweed in the summer-autumn period.
Notably, interest in Ambrosia in Zakarpattya, the most Western region of Ukraine, was higher than in other Western regions. It can be explained by the ragweed infestation of Zakarpattya from Hungary.
The lowest number of requests were seen in Western regions, which are not infested by ragweed, and in Donetsk regions, which are heavily occupied by Russia. This is despite the fact of known areas of excessive ragweed infestation in this region.

Based on the data obtained, it can be concluded that the population of the South and East of the country is more interested in ragweed topic than other citizens. This may coincide with the known areas of ragweed in Ukraine.
And the timing of requests coincides with the peak periods of ragweed pollination too.
The increase of requests for ragweed in Cherkasy and Kyiv may reflect the migration of Ambrosia from the South through Cherkasy to the capital of the country by water route as Cherkasy connects Kyiv with the

Black Sea shore by the river Dnipro.
To prevent allergic reactions to ragweed pollen, quarantine measures should be taken to reduce the spread of these plants; improve public and health information.

References:
1. All about allergies. Allergy to ragweed does not come by itself. URL: https://allergy.org.ua/alerhiia-na-ambroziiu-ne-prykhodyt-sama/
2. All about allergies. Ragweed allergy is curable: what to do now and how to survive the season. URL: https://allergy.org.ua/alerhiya-na-ambrozyiu-vylikovna/
3. All about allergies. Why ragweed causes allergies and how to cure it. URL: https://allergy.org.ua/chomu-ambroziia-vyklykaie-alerhiiu/
4. Google Trends. Compared distribution by subregions. URL: https://trends.google.com/trends/explore?date=today%205-y&geo=UA&q=ambrosia, ambrosia
5. Analitiks allergy.org.ua .. Allergy forecast for “Ambrosia”. URL: / ru / alergoprognoz /

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