



Figure 2 – The prevalence of the disease among women and men in 2015.

To detect early disorders of carbohydrate metabolism in primary care can apply scale prediction of diabetes and test glucose tolerance. Early disorders of carbohydrate metabolism should be examined in individuals belonging to high risk group.

Conclusion. The results can be seen that the number of pathology violations of carbon-water exchange is rapidly increasing. The share of diagnostics of violations of carbohydrate metabolism accounts for 27% of all of the research conducted in clinical and biochemical laboratories. A greater number of pathologies have on the female population -83% of the identified diseases in males – 17%.

Thus, the detection of violations of carbohydrate metabolism is an important area of primary prevention of diabetes. Further research will be continued and aimed at the study of diabetes complicated by diabetic nephropathy in the adult population.

Reference list:

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**INVENTORY AND ANALYSIS OF THE COLONIES
OF HERACLEUM SOSNOWSKYI'S CONDITION
ON THE TERRITORY OF LYOZNENSKY DISTRICT WITH GIS**

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As a result of anthropogenic activities on our planet, many species of animals and plants migrate. At the same time, part of the migrations leads to serious environmental, social and economic consequences. There is a

struggle against alien species of flora and fauna that oppress or destroy native species of Belarusian territory. This process starts the Convention on Biological Diversity, signed in 1992 in Rio de Janeiro.

Purpose – the creation of GIS for customers and conducting on its basis an inventory of habitats and a primary analysis of the *Heracleum sosnowskyi*'s condition in the Liozno district (Vitebsk region).

Material and methods. Analysis of funds and literature sources, observation, cartographic, geoinformation, statistical data processing, comparative analysis, remote sensing.

As a basis for creating a custom GIS, we chose the MapInfo Professional platform, which has all the standard characteristics of this kind software, is easy to use and is an excellent tool for analyzing the distribution of *Heracleum sosnowskyi* colonies.

Geographic Information System (GIS) is a computer system that allows you to display data on an electronic map and analyze them.

The initial materials for the project's implementation are:

- Data of field survey on the territory of the Liozno district.
- Space and aerial photography data, the Land Information System of the Republic of Belarus, cartographic materials.
- Thematic reports of regional resource and environmental protection committee, executive bodies of local authorities, agricultural and other enterprises, statistical data.

Based on the primary results obtained was designed a database. The basis for the database was the classifier for the GIS "Invasive species of the Vitebsk region". This classifier containing detailed information about each colony: location, photographs, date of examination, condition and size at the time of the survey, land type and recommendations for controlling invasive species.

Based on this classifier and the generated database was created GIS for customers that allows:

- store an unlimited amount of information about the problem's state;
- carry out an operative (if necessary, interactive) updating of data using any information sources (network resources, satellite navigation data, expeditionary studies, etc.);
- analyze data with the help of powerful built-in tools or connecting most of the currently available software resources for processing statistical information and graphics;
- present the data and results of their analysis in any convenient format (maps, graphs, charts, tables, text), formulate standardized reports on the problem's state;
- promptly provide the necessary information to state and business organizations on the basis of a system of requests and connect GIS to network resources.

Results and their discussion. Data's final processing was carried out using the analytical tools of the MapInfo Professional platform. We also used the possibility of GIS to connect more familiar software products (MS Excel), which differ in their availability and ease of use for constructing graphs, charts, and pivot tables.

The analysis of Liozno district helps us to make the following conclusions:

1. about 95,88% of the land are agricultural purposes, about 1,17% are the affected areas are the lands of settlements, 2,18% are the mini-municipal waste and only 0,77% are land along roads and roadside belts;

2. 67,63% of colonies dominate the occupied territory, 14,4% of colonies progress, 16,52% have some degree of depression, the remaining 1,44% are stable;

3. about 25% of cases invasive plants are destroyed by mowing, about 1% by herbicide and plowing, and the struggle with other colonies is not conducted;

4. the main recommendations for control in 77,41% of cases are based on regular cropping and plowing in combination with the use of herbicides, also in 19,35% – it is possible to use the technology of crop rotation and only 3,22% – mowing;

5. colonies of *Heracleum sosnowskyi* can expand their space for 15–20% in near future if the spread preserve as at this time

The obtained data of the Liozno district were transferred to the Vitebsk Regional Committee for Nature and Natural Resources Protection, the Institute of Experimental Botany named after V.F. Kuprevich National Academy of Sciences of Belarus"; included in the database of the Republic of Belarus' ZIS and make a basis for the development of planned measures to combat invasive species in the areas of the Vitebsk region.

Conclusion. The creation of customs thematic GIS is a progressive method for conducting research, which allows solving many practical problems without attracting large investment resources, and optimizes labor costs.

THE ACTIVITY OF CATALASE IN HEPATOPANCREAS

Planorbarius corneus

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At the present time for assessing the status of ecosystems using the methods of biological indication. While great attention is paid to the use for these purposes of live objects. As such objects, using freshwater mussels. Working with them is less time consuming and the most expedient in economic terms. The study of biochemical parameters of these organisms