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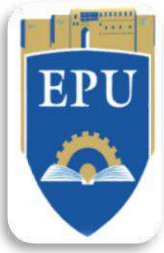

Environmental, Health and Safety (EHS) Guidelines for Poultry Production

A research submitted to the Council of the Veterinary Department as part of obtaining a veterinary technical diploma

PREPEARED BY

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

﴿ وَمَا أَرْسَلْنَا مِنْ قَبْلِكَ إِلَّا رِجَالًا نُوحِي إِلَيْهِمْ فَاسْأَلُوا أَهْلَ الذِّكْرِ إِنْ كُنْتُمْ لَا تَعْلَمُونَ ﴾

[النحل: 43]

Dedication

To the light that reveals the darkness of ignorance, the teacher of humanity....Muhammad (may God bless him and grant him peace) To the one who implanted in me the pulse of life and made my life a goal to which I strive...my father

To the world of tenderness, love, mercy, and a symbol of sacrifice....my dear mother

To those who have been the best help for me, my dearest brothers and sisters

To everyone who wanted me to succeed and good.....

we dedicate this fruit of our effort...

we dedicate to all of you the harvest of your planting and our humble effort

Research students

Acknowledgment

Praise be to God, who enlightened the hearts of His pious servants with the light of His clear Book, and made it a guidance and a mercy for the believers, and prayers and peace be upon the most honorable of messengers, our master Muhammad, the trustworthy Arab Prophet, lasting prayers and peace until the Day of Resurrection and Resurrection, and upon his immaculate family, his righteous companions, and those who followed them with kindness until the Day of Judgment. To proceed: I have the honor to extend my thanks, appreciation and gratitude to all my distinguished professors in the veterinary department, and our special thanks to our supervisor, Dr. Hassan Abdullah Muhammad, who provided us with the sources and supported us to complete the research.

We do not forget our families and their support and bear the trouble of studying with us.....

Supervisor approval

I certify that this research decreed (EHS Guidelines for Poultry Production Submitted by students: (Deidar Daham Abdul Karim Shleir Ibrahim Ismail Gyilan Hamdamin Ahmed Hamdamin)

It took place under my supervision at Shaqlawa Technical College as part of the requirements for obtaining a diploma in veterinary medicine.

Signature

Name: Asist. Proff.Dr. Hassan Abdullah Mohammed

Date:

Based on the available recommendations, I recommend the research for discussion .

Signature :

Head of Department :

Date:

Summary

Provides general guidance on the environment, health and safety of the community, where community health and safety issues related to the establishment and decommissioning of poultry production facilities are similar to those that occur in other large projects. In addition to the effects related to food safety and how to deal with them, such as antibiotics, which are the main veterinary drugs used with poultry, and these antibiotics are used to prevent and treat bacterial diseases. More than the antibiotics that used to affect them quickly, and that resistance leads at the end of life to the loss of antibiotics in their effectiveness in a specific treatment in humans, in addition to that when antibiotics are consumed unintentionally due to their presence as residues in foodstuffs when it is not possible to calculate the quantity Which has been swallowed or monitored and may result in direct health problems such as aplastic anemia, which poses a serious threat to human health and with regard to the risks related to the health and safety of society regarding the ingestion of dangerous substances present in poultry products. Global Health Guidance on issues of veterinary medicines and pesticide residues, for example, the constitution contains 46 maximum literature residues in poultry products, including eggs, and the maximum limits for pesticide residues in poultry and eggs. The official specifications of the Food Constitution Committee also contain standards for chicken products, for example, written Recommended International Hygiene Practices for Egg Products. Laws in some countries require maximum residue limits to be observed, and their observance is being encouraged elsewhere.

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1. Introduction

The EHS Guidelines are technical reference documents that include general and industry-specific examples of Good International Industry Practice (GIIP)[1]

When one or more member institutions of the World Bank Group are involved in a project, these EHS Guidelines are applied as required by that institution's policies and standards. These industry guidelines are intended to be used in conjunction with the General EHS Guidance document, which provides guidance to users on issues that are common to this area and are applicable to all of our industries. For complex projects, multiple guidelines may need to be used depending on the various industry sectors involved.

The EHS Guidelines include performance levels and procedures that the existing technology can achieve in new facilities at a reasonable cost. This may include application [1,26].

Guidelines for existing facilities setting special goals and objectives each site separately, with the adoption of an appropriate timetable to achieve them. The application of the EHS Guidelines should be proportional to the risks and threats identified in each project, based on the results of the environmental assessment that takes into account.

1. Defined: The exercise of the skills, diligence, prudence and foresight that would reasonably be expected of professionals with practical skills and experience in the same kind of work and in generally the same or similar settings. Situations that professionals with practical skills and experience would find when evaluating the range of pollution prevention and control methods available for a project may include, but are not limited to, different levels of environmental degradation, environmental Financial and technical feasibility.

The variables of each site separately, including: the situation in the host country, the absorptive capacity in the environment concerned, and other factors pertaining to the project. The application of specific technical recommendations shall be based on the professional opinion of the qualified persons with practical experience [2].

Where host country regulations differ from the levels and measures presented in these EHS Guidelines, projects are expected to achieve whichever is more stringent. If levels or measures less stringent than set out in these Guidelines are appropriate, given the circumstances of the project concerned, a full and detailed justification of any proposed alternatives is required as part of the site-specific environmental assessment. That justification should show that the choice of any of the alternative levels of performance protects human health and the environment[27].

2. Literature review

2.1 application

Includes environmental, health and safety guidelines Information relevant to intensive poultry production (including ducks and turkeys). Appendix A contains detailed description of the industry's activities in this sector. This document is organized according to the following sections:

Section 1.0: Industry-specific impacts and how to deal with them.

Section 2.0: Performance Indicators and Monitoring.

Section 3.0: Bibliography and Additional Sources Appendix A: General Description of Industry Activities [3, 25].

2.2. SECTION 1.0: INDUSTRY-SPECIFIC IMPACTS AND HOW TO MANAGE THEM

The following section presents a summary of the environmental, health and safety issues related to poultry production that occur during the operation phase, along with recommendations for their management. It should be noted that the relevant

recommendations dealing with EHS issues common to the majority of major projects during the construction and decommissioning phases contained in the General EHS Guidelines[4,5,6,7,24].

3. Environment

Environmental issues related to poultry production projects include the following main issues:

- Waste management
- Wastewater
- Air emissions
- Hazardous materials

- Waste management

Solid waste included that arise from poultry production operations dietary waste, animal waste, dead animals, sludge and sediment from on-site wastewater treatment facilities (which may contain residual amounts of growth promoters and antibiotics, Waste management and disposal in accordance with the guidance for hazardous and non-hazardous waste provided in the General EHS Guidelines[8].

3.1. Diet waste

Bird diets (and animal feed) consist mainly of corn and soybeans, though may be added other grains, legumes, root crops, and articles of animal origin (including
For example, fish meal, meat and bone meal, milk products (The diets are usually supplemented with amino acids, enzymes, vitamins, and mineral supplements, and may contain hormones, antibiotics, and heavy metals).

The arsenic compound commonly used is Roxarson).3-(nitro-4-hydroxyphenylarsoni) acid, birds are usually kept in a closed barn, but some are moved to open ranges. Birds are generally fed inside barns by means of manual or

mechanical feeders, either continuously or at specific intervals. Feeds can turn into unusable waste if they are spoiled during storage, loading, unloading or while feeding animals. The sludge waste, including the materials added to it, may contribute to the pollution of stormwater drains, mainly due to its content of organic materials [9].

Recommended measures to increase process efficiency and reduce feed waste include the following:-

- Protecting diets from exposure to rain and wind during processing, storage, transportation and fodder
- Maintaining the proper functioning of the feed storage, transportation and feed systems
- Keep logs of use feed animal.
- Consider mixing diet waste with other recyclable materials for the purpose of using them as fertilizers.
- With regard to feed waste that cannot be recycled due to the potential risks it poses to biosecurity, alternative methods of disposal should be provided in consultation with the local health authorities.

3.2. Animals waste

Poultry production processes generate large amounts of animal waste, not only manure, which comes in the foreground, but also other materials such as animal bedding, and animal waste management depends mainly on the type of operation which may consist mainly of a dry or wet cage system or bedding. Animal waste management includes the collection, transportation, storage, treatment, use and disposal of waste. Sometimes the manure is buried, and it can also be stored under gables or inside storage areas with roofs or outside, whether it is covered or not, or it

can be stored from time to time inside ponds until It becomes ready to be transported to its disposal site or to its use area on the ground. Dung is generally used as fertilizer in agricultural lands*[10]. The dung contains nitrogen and other single substances such as hormones, antibiotics and heavy metals that are part of the feed. These materials may result in emissions of ammonia and other gases in the air, which can pose a potential danger in terms of contamination of surface water sources or groundwater through leaching. It contains dung also contains bacteria and pathogens that may also affect soil, water and food sources, especially if it is not properly managed during its use as agricultural fertilizer. Dung can be used as fertilizer in agricultural lands after a careful assessment of the potential effects due to the dangerous chemical or biological components it contains. The evaluation results indicate There is a need to conduct some level of treatment and preparation before using lipstick sketches and determine the rates of use**.

*The highly pathogenic avian influenza virus may spread through all secretions, especially bonds, and since the virus is highly tolerable and able to survive for months in cold and moist climates favorable in freezing conditions in an indefinite manner, its elimination requires closed treatment of the roots at relatively high temperatures above 60 degrees Celsius.

** The EHS Guidelines for By-products and Agricultural Crops provide additional information on the use of crop nutrients.

In order to reduce the quantities of excreted manure and facilitate the handling of animal waste and the transmission of pollutants to surface water, groundwater and air, the following management measures are recommended*[11].

- Implement a comprehensive nutrient profile plan, including a total nutrient balance for the entire farm. This plan should ensure that the use of rootstock does not exceed plant nutrient uptake and that records are kept of nutrient management practices that match the content of diets to the specific nutritional requirements of birds at their different production stages.
- Using a daily low-protein diet. Supplemented with amino acids Use a daily low phosphorus diet containing inorganic phosphate of that type which is most easily digestible For example in the case of poultry A benefit for total phosphorus can be achieved in the range from 0.05-0.1% or 0.5 to 1 %.g/kg feed.
- The use of feed materials of good quality that are not contaminated, for example materials whose concentrations are known from pesticides and additives, provided that their levels do not exceed acceptable levels and do not contain excessive levels of copper, zinc and other additives more than what is necessary for the health of the animal.
- Ensuring the establishment of root production and storage facilities at a level that prevents root contamination of surface water and groundwater, for example, the use of concrete roofs and the use of roof gutters to collect and divert clean rainwater, and cover the link storage areas with fixed ceilings of plastic sheets.
- Keeping the waste dry as much as possible by distributing it instead of distributing it with water to remove it or distributing it in addition to washing

it and reducing the amount of water used during cleaning, for example using high-pressure hoses with narrow ends.

- Using hot water or steam in cleaning activities instead of cold water can reduce the amount of water used by 50%.
- Further reducing the moisture content in the dry secretions of poultry, for example, exposing them to dry air or ventilation dung wells.
- Reducing the surface area used to store dung.
- Choose sites for manure exchange away from bodies of water, streams, wellhead fields, or other sensitive environments.
- Checking the absence of leaks on a regular basis, for example, inspecting tanks to verify the absence of corrosion in the welds, especially those close to the ground level, emptying the tanks and inspecting them annually or as necessary.
- The use of double headphones on the outlets of fluid tanks reduces the possibility of unintentional leakage.
- Placing dry manure or animal bedding in a covered or roofed area.
- Accommodate the root storage facilities when it is generated from the soil during a period ranging from 9 to 12 months, so that it can be used on agricultural lands at appropriate times.
- Design, construction, operation and maintenance of waste management and storage facilities at a level that allows the containment of all ties, animal bedding and waste water resulting from operations, including runoff and direct rain.
- Create backup artificial ponds for storage.
- Transportation of liquid waste in vehicles equipped with closed tanks[8].

3.3. Dead poultry

Dead poultry should be dealt with in a nebulous manner and quickly because it constitutes a large source of diseases and odors and attracts insects that carry diseases. Recommended measures for the handling and disposal of dead poultry include following:[12].

- Reducing mortality by providing health care for animals and protecting them from diseases.
- Collecting dead poultry on a regular basis to prevent putrefaction, burying dead poultry free of diseases, and ensuring that the burial process is managed at a level that prevents the occurrence of odor sales.
- Since there are no approved companies available to collect dead birds upon permission, a burial site can be prepared inside the site as one of the feasible alternatives. The occurrence of pollution due to the emission of fumes from buried dead birds during their decomposition and avoiding burning in the air.

4. Waste water

Waste water resulting from industrial processes may arise from poultry production operations, liquid waste from several sources, including the effluent from poultry pens, the feeding and watering process, and from waste storage and management facilities. It may also arise from waste management activities. The source is a result of runoff. These two types of liquid waste may cause the surface water and groundwater to be polluted with nutrients.

Pesticides, pathogens, and materials added to diets such as heavy metals, hormones, and antibiotics. The liquid waste resulting from poultry production operations usually contains large amounts of organic matter, and thus a large

biochemical need for oxygen and a chemical need for fresh air, as well as nutrients and suspended solids.

To avoid these damages:[13,14,15]

- The use of water and human beings as a result of watering animals must be reduced by preventing flooding of watering devices and the use of self-watering and calibration devices and good maintenance plants.
- Installing agricultural filters to hold sediment.
- Installing systems for diverting surface water to direct clean streams away from areas that contain waste.
- Establishing buffer zones for surface water blocks according to local conditions and variables, and avoiding the impact of the kindergarten on the lands of these areas.

5. Air emissions

include air emissions that arise from poultry production processes in the air, ammonia, for example, for animal waste management, odors, for example, animal shelters, waste and dust management, for example, ration storage activities, loading and unloading, feed, waste management, and which effective waste management, as shown above, is of the highest importance Critical for reducing air emissions and additionally recommend management techniques discussed below to further reduce the effects of air emissions from poultry production processes[16].

- The recommended measures to reduce the effects of ammonia and odors include the following: Studying the locations of new facilities and taking into account that they are appropriately far from residential neighborhoods as well as the spread of odors.

- Controlling the storage temperature of dung, the level of humidity and other environmental factors. Soil fertilization activities by root, by placing a layer a few centimeters thick below the surface of the soil and choosing appropriate weather conditions, for example, the direction of the wind should be away from the areas[17].
- Reducing emissions and odors during the activities of fertilizing the land with manure by placing a layer of thickness a few centimeters below the surface of the soil and choosing appropriate weather conditions, for example, the direction of the wind should be away from populated areas.

6. **Exposure to biological factors**

Workers may be exposed to a group of pathogens such as bacteria, fungi, chastity and viruses, including the avian influenza virus transmitted from live birds, secreted materials, dead birds, parasites and ticks. Microorganisms resistant to antibiotics in the gastrointestinal tract of birds. Antibiotic-resistant bacteria can be transmitted to people residing in the farm or in neighboring areas and infect them. The administrative measures that should be taken to avoid the negative consequences of exposure of workers to biological factors include the following:-

- Inform workers of potential risks to biological agents and train them to recognize and mitigate these risks.
- Provide workers with personal protective equipment to reduce all forms of exposure to materials that may contain pathogens.
- Ensure that people with allergic reactions to biological agents do not deal with these materials.

7. Performance Indicators

7.1. Environmental [18, 19, 20]

Monitoring Guidance on Some Emissions and Effluents Table 1 shows guidelines on effluents in this sector for animal feed operations that do not generate effluents. Source specific and guideline values for sales and process effluents in this sector clearly explain international good industrial practice as contained in relevant standards among countries that have a recognized regulatory diameter. These guidelines can also be applied under normal operating conditions within facilities designed and operated at Appropriately through the application of pollution prevention and control methods discussed in the previous sections of this document, these levels should be applied without dilution for at least 95% of the plant's operating time, first unit, after computed as a percentage of the secondary operating hours. Achieving these levels due to the conditions of a specific project in the environmental assessment. Poultry production operations may also include unidentified sources of effluents or emissions that may require monitoring, through the correct implementation of the nutrient management strategy as described above. Humans and the environment due to the presence of disease-causing agents in waste streams, and the goal of this strategy should be to reduce the nutrient excess sediments and other contaminants contained in streams as well as additional considerations specific to surface water discharge as described in the General EHS Guidelines

Table 1 Liquid waste levels in the poultry production sector		
contaminants	Unite	Indicative value
pH	pH	6-9
Abiochemical requirement for oxygen	ml/L	50
The chemical need for oxygen	ml/L	250
Total nitrogen	ml/L	10
total phosphorous	ml/L	2
Oils and greases	ml/L	10
The total suspended solids	ml/L	50
Increased temperature	Cellos	3≥
Gram-negative coliform bacteria	Number more probity/100ml	400

Table 2 presents the typical range for ammonia emissions from poultry housing systems. These values are provided for comparison purposes only and to assist in defining indicative standards at the project level.

5.2. Exploitation of resources

Tables 2, 3, 4 and 5 present examples of resource consumption indicators for energy, water, materials and waste in this sector. The two tables also provide indicative standard values for the industry for comparison purposes only. Individual projects should aim for continuous improvement in these areas. These indicative standards are based on the European Union and may need to be

modified for regions where it is where the climate is hotter, especially when using the cooling system with pads in order to preserve the environment.

Table 2 shows ammonia emissions from poultry production systems		
Type of home	Unit	average emission factor
Laying hens inside the cages, under which there are deep pits to collect and store manure	1-h1-g.NH3 LU	6.9
Laying hens inside cages on belts that are cleaned once a week	g NH3LU-1h-1	2.9
Put all the birds on a mattress	g NH3LU-1h-1	5.5
Source- a - Taken from the Department of Environment and Rural Affairs in the United Kingdom 2002. b- The weight of the ammonia emitted according to the unit of time and according to the live weight of the bird inside the shelter		

Table 3 Estimation of energy of sector poultry production		
Activity	Calculate of estimation energy	
	Broiler chicks	Layer hen
Local heating	13-20	
Feed	0.4-0.6	0.5-0.8
Ventilation	0.10-0.14	0.13-0.45
Light		0.15-0.40
Eggs storage		0.30-0.35
Notes a watts per jour per bird/day. B watts per hour /egg/day source Europe emission (2003).		

Table 4 estimation of water in sector of poultry production					
estimation of water by chicken					
Type	% average water/feed	Cycle estimation of water	Year estimation of water	Year estimation of water and cleaning area	
Broiler chicks	1.7-1.9	4.5-11	40-70	0.120-0.012	
Laying hen	1.8-2.0	10	83-120	Laying hen in cages	0.01
				Laying hens in the litter	More than 0.025
Source Europe emission (2003). Integrated pollution					

Table 5 Nitrogen loss management from poultry manure						
Manure management system	excreted nitrogen	loss from			Total loss is in the air	Available for total crops
		building	store	farm		
Pounds of nitrogen/head/year						
Use on surfaces	0.9	0.18	0.03	0.17	0.38	0.51
Mixing with the soil	0.9	0.18	0.03	0.04	0.25	0.65
Mix with alum	0.9	0.03	0.04	0.21	0.28	0.62
Source: Marcel Ellery and others, Economic Research Service of the US Department of Agriculture, Root Administration for Improving Air and Water Quality, Economic Research Report No. ERR9 P 65.2005.						

5.3. Environmental monitoring

Environmental monitoring programs for that sector must be applied to deal with all activities that have been identified as causing potentially significant impacts on the environment during normal operations and in turbulent conditions. Environmental monitoring activities must be based on direct or indirect indicators applied to a specific project for emissions, effluents and resource use. Monitoring frequency should be sufficient to provide representative data for the parameter being

monitored Monitoring should be carried out by trained personnel in accordance with monitoring and record-keeping procedures with properly calibrated and maintained equipment Monitoring data should be analyzed and reviewed at regular intervals and compared with operational standards so that action can be taken Any necessary corrective actions The General EHS Guidelines provide additional guidance on monitoring programmers [21,22,23].

8. CONCLUSION AND RECOMMENDATION

CONCLUSION

The factors that cause animal diseases spread rapidly, especially within crowded vital facilities, and animal diseases can enter facilities with the entry of new animals, equipment, and people. Some diseases may lead to the weakening and killing of a large number of animals inside the infected facility, and both poultry manure and dead poultry contain disease-causing microorganisms that can infect humans, for example, viruses such as avian influenza and parasites such as helminths, and in some cases disposal becomes a group A whole group of animals is the only treatment available to the facility to prevent the spread of disease to other procedures or to other facilities. Special measures to prevent the spread of animal diseases depend largely on the types of animals present in the facility, the way in which specific diseases spread and infect animals, and the susceptibility of infection to specific diseases. The basis for establishing adequate disease prevention measures is to find information about animal diseases and how to prevent them. Some general types of management methods recommended to reduce the potential for animal pathogens to spread include the following:

- Training personnel on the method of spraying pesticides according to planned procedures Use the necessary protective clothing where possible or required Individuals should be responsible for the use of pesticides and have certificates for this purpose.

- Avoid using products listed in the WHO recommended pesticide class A1 and B1 class of hazard.
- Maintenance and calibration of pesticide and pesticide spraying equipment according to the manufacturer's recommendations.
- Storing pesticides in their original packaging inside a designated location, provided that it is in enclosed spaces and properly sealed with the appropriate marks.

RECOMMENDATION

- Placing sound cards and collages for biological security in the entire poultry facility in order to monitor animals, diets, equipment, workers, and entry to the facility, for example, during animal quarantine periods New, washing, disinfecting and washing equipment, providing workers with protective clothes and shoes, and keeping stray animals, rodents and birds away.
- Monitoring the entry of farm animals, equipment, personnel, wild animals or pets into the facility, for example quarantine periods for new animals, washing and disinfecting cages, disinfecting and covering shoes before entering birding areas, and providing personnel with protective clothing.
- Preventing wild birds from approaching or touching diets, as this could be a factor in the spread of bird flu from birds, cows, etc.
- Subjecting vehicles that move between farms, for example, transporting veterinarians, farm suppliers, buyers, etc., to preventive measures, including limiting their operations to special areas equipped with means that guarantee biological security, spraying tires, and treating parking lots with disinfectants.
- Sterilization of bird shelters, setting up a detailed program for the health of animals by the specialized veterinary and laboratory authorities, identifying and isolating sick birds, and developing administrative procedures for transporting sick animals and disposing of them appropriately.
- Developing systems for entry and exit of one-year-old groups only for each farm, wherever possible.
- Workers who work on farms with birds of different ages should always work with young birds or not before they work with older birds.
- Training workers to use animal health products.

پوختە

ڕێنمایی گشتی سەبارەت بە ژینگە و تەندروستی و سەلامەتی کۆمەڵگا پێشکەش دەکات، کە پرسەکانی تەندروستی و سەلامەتی کۆمەڵگا پەیوەست بە دامەزراندنی و وەستاندنی دامەزراوەکانی بەرهەمهێنانی پەلەوەر هاوشێوەی ئەوانەن کە لە پڕۆژە گەورەکانی تردا ڕوودەدەن. جگە لەو کاریگەرییانەی پەیوەستن بە سەلامەتی خۆراک و چۆنیەتی مامەڵەکردن لەگەڵیان، وەک دژە زیندەیی کە دەرمانی ڤێتێرنەری سەرەکین کە لەگەڵ پەلەوەردا بەکاردەهێنرێن و ئەم دژە زیندەییەش بۆ خۆپاراستن و چارەسەرکردنی نەخۆشییە بەکتریاییەکان بەکاردەهێنرێن. زیاتر لەو دژە زیندەییانەی کە پێشتر بە خێرایی کاریگەرییان لەسەر دروست دەکرد، و ئەو بەرگرییە لە کۆتایی تەمەندا دەبێتە هۆی لەدەستدانی دژە زیندەییەکان لە کاریگەرییەکانیان لە چارەسەرێکی دیاریکراودا لە مرۆڤدا، ئەمە جگە لەوەی کاتێک دژە زیندەییەکان بەبێ مەبەست دەخورێن بەهۆی بوونیانەوە وەک پاشماوە لە خۆراکەکاندا کاتێک ناتوانرێت بڕیەکەی حیساب بکرێت کە قووت دراوە یان چاودێری کراوە و لەوانەیە ببێتە هۆی کێشەی تەندروستی ڕاستەوخۆ وەک کەمخوێنی ئەپلاستیک، کە مەترسییەکی جددی لەسەر تەندروستی مرۆڤ دروست دەکات و سەبارەت بە مەترسییەکانی پەیوەست بە تەندروستی و سەلامەتی... کۆمەڵگا سەبارەت بە خواردنی ئەو ماددە مەترسیدارانەی کە لە بەرهەمە پەلەوەرەکاندا هەن. ڕێنمایی تەندروستی جیهانی سەبارەت بە پرسەکانی دەرمانی ڤێتێرنەری و پاشماوەی قڕکەر، بۆ نموونە دەستوور 46 زۆرترین پاشماوەی ئەدەبیاتی لە بەرهەمەکانی پەلەوەردا لەخۆگرتووە، لەنێویاندا هێلکە، هەروەها زۆرترین سنوور بۆ پاشماوەی قڕکەر لە پەلەوەر و هێلکەدا دانراوە. هەروەها تایبەتمەندییە فەرمییەکانی لیژنەی دەستووری خۆراک ستانداردەکانی بەرهەمەکانی مریشک لەخۆدەگرێت، بۆ نموونە، نووسراوی پێشنیارکراوی پراکتیزە نێودەوڵەتییەکانی پاکوخاوێنی بۆ بەرهەمەکانی هێلکە. یاساکان لە هەندێک وڵاتدا داوا دەکەن کە زۆرترین سنووری پاشماوە ڕەچاو بکرێت و لە شوێنەکانی دیکەش هاندەری پابەندبوونیان دەدرێت.

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