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**Protection of Waters Against Agricultural Pollution Through  
Establishment Of A Monitoring And Reporting Methodology For The  
Nitrate Action Plans  
EuropeAid/140563/IH/SER/TR**

**NATIONAL CONFERENCE  
PROTECTING WATERS AGAINST AGRICULTURAL POLLUTION**

**CONTROL AND MANAGEMENT STUDIES OF AGRICULTURAL POLLUTION IN TURKEY**

**Yusuf GÜRBÜZ  
Working Group Manager**

**June 2, 2022  
Ankara**



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- **NITROGEN CYCLE AND CONVERSION OF NITROGEN IN SOIL**
  - Nitrate Pollution in Waters and the Consequences
- **POLICY DOCUMENTS, LEGISLATION AND EU COMPLIANCE**
- **NITRATE POLLUTION MONITORING STUDIES**
  - Monitoring Infrastructure and Nitrate Information System (NIBIS)
- **CODE of GOOD AGRICULTURAL PRACTICE**
- **DETERMINATION OF NITRATE SENSITIVE ZONES (NHB)**
  - NVZ Determination Method and Current Stage
- **PREPARATION OF NITRATE ACTION PLANS**
  - Settlement Based Nitrate Action Plan
- **IMPLEMENTATION, MONITORING AND REPORTING OF NITRATE ACTION PLANS**





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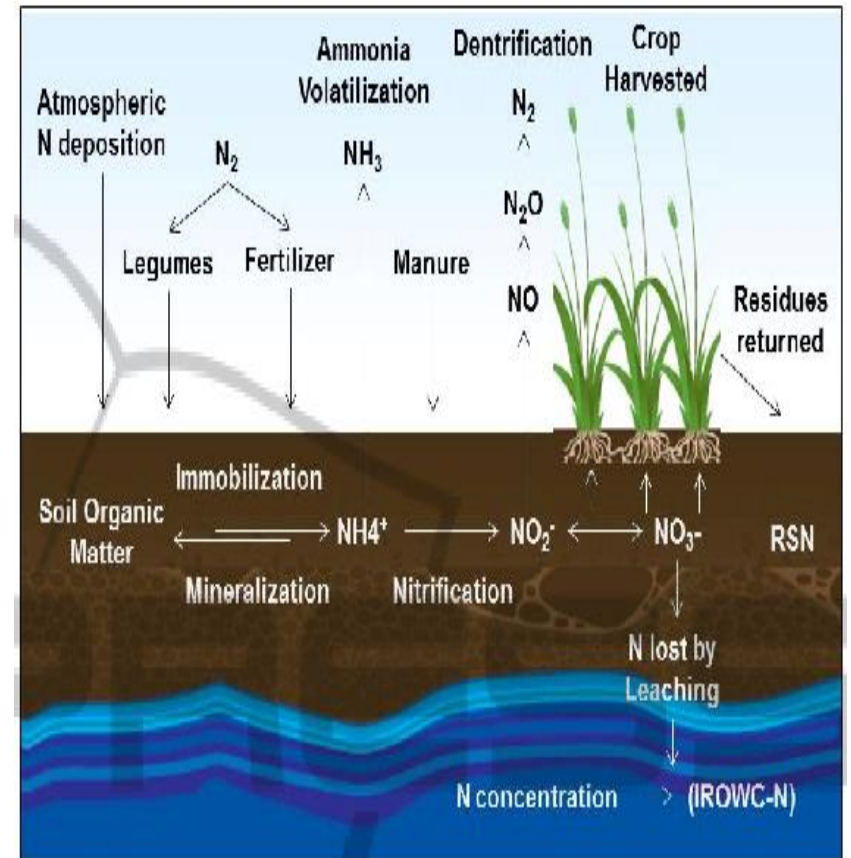
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## NITROGEN CYCLE IN SOIL

- Presence of nitrogen in the soil;
  - changes depending on physical, biological and chemical events.
- N motion occurs in different forms with these complex events:
  - Ground entry (inputs);
  - Within the soil (conversions) and
  - Coming out of the soil (losses)
- All of these events are defined as the Soil N cycle.

The soil **N** cycle is the most important part of the overall N cycle in nature.

The end product of the oxidation of nitrogen in the soil is  
**NITRATE**.





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## **NITROGEN CONVERSION**

**Nitrogen applied to the soil, in whatever form, undergoes various transformations and eventually turns into nitrate (**NO<sub>3</sub>-**).**







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**The excess nitrate ( $\text{NO}_3^-$ ), which is formed as a result of the application of nitrogen fertilizer **more than the plant needs or when it does not need it**, is **washed away or leak by precipitation and irrigation waters** and move away from the plant root, passes into the surface and underground waters and **causes pollution.****

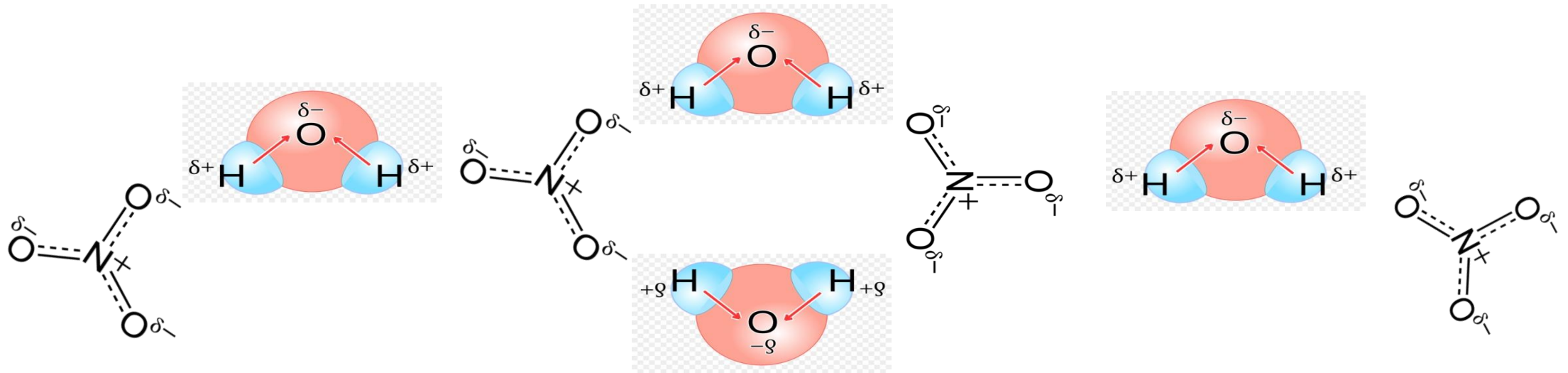




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## NITRATE AND WATER





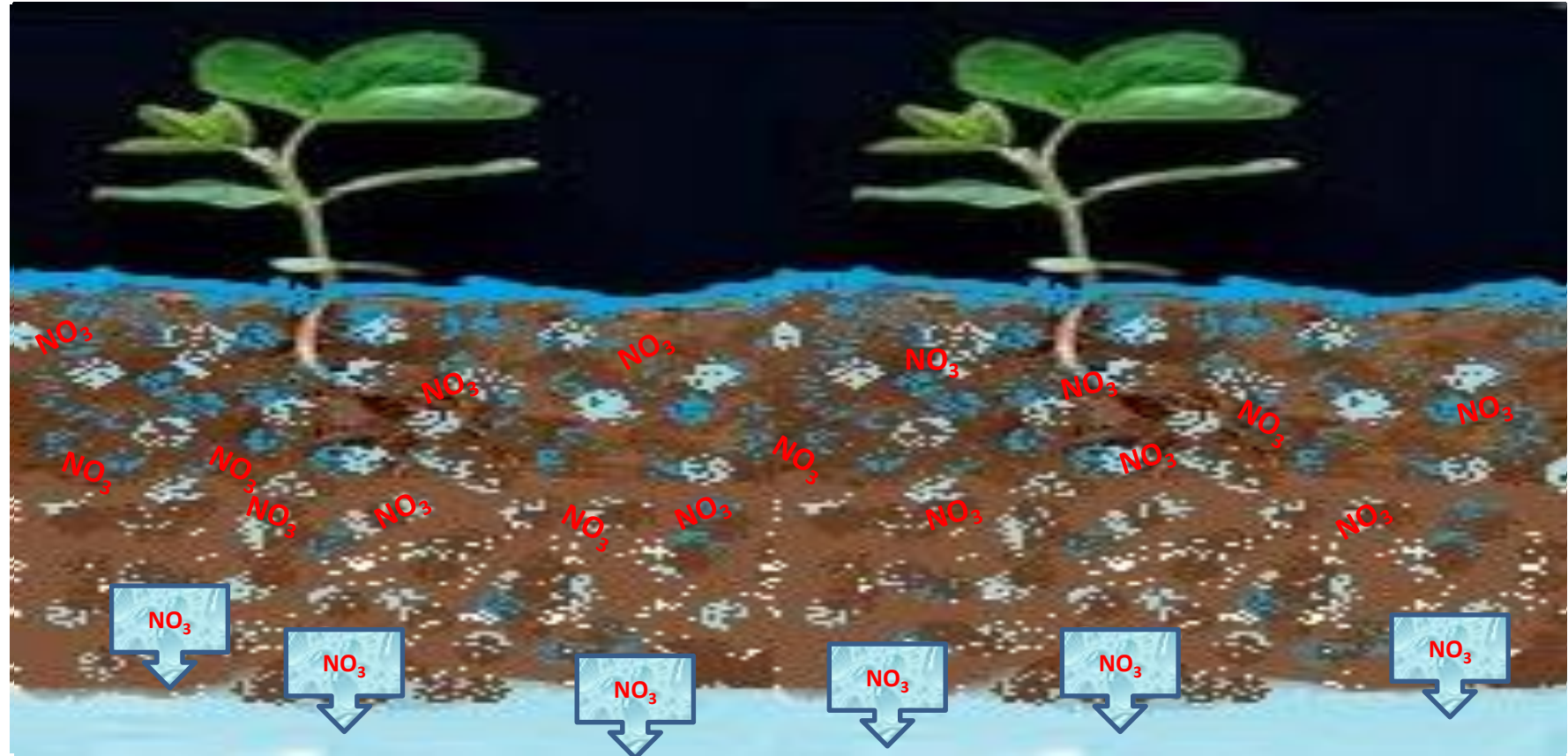


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## NITRATE POLLUTION

**Due to its solubility in water, the biggest pollution in waters caused by agricultural activities is nitrate pollution, which is easily displaced and permanent.**

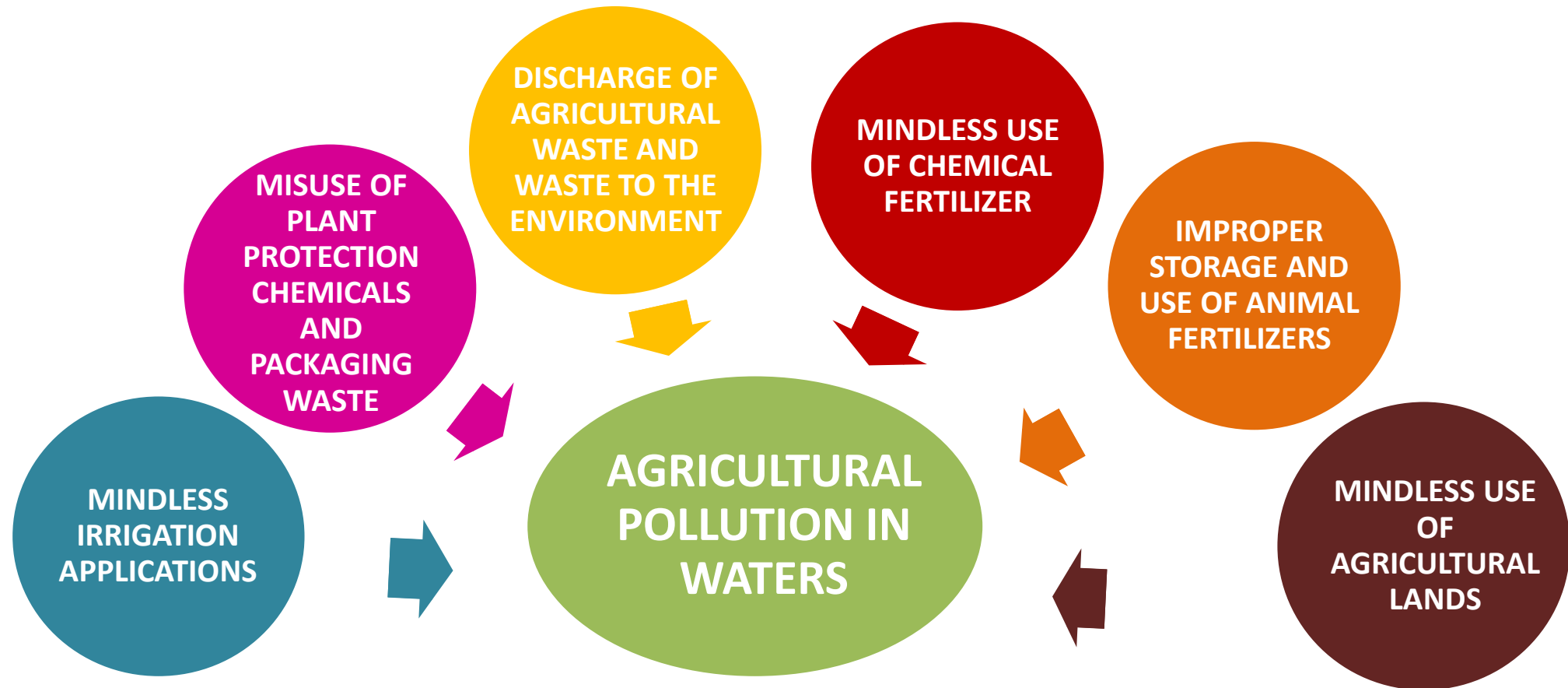




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## AGRICULTURAL POLLUTION





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## CONSEQUENCES OF AGRICULTURAL POLLUTION

### Effects on human health

Nitrate can be converted to nitrite in the stomach and intestines.

- ✓ In people who use drinking water with a high nitrate concentration, nitrate turns into nitrite in the stomach and intestines, mixes with the blood, and prevents the blood from transmitting enough oxygen to the tissues, and poisoning occurs in 3-6 months old babies, which manifests itself with cyanosis (bruising), known as blue baby disease.
- ✓ Nitrite reacts with organic amines to form nitrosamines, which are known to cause cancer and mutation.





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## CONSEQUENCES OF NITRATE POLLUTION

### Effects of nitrate on human health

- It causes **hemodynamic disorders** such as disruption of fluid and electrolyte balance, blood volume and blood circulation.
- It causes an **increase in esophageal, colon, prostate and bladder cancers** in humans.
- It has been determined that there is a **strong correlation between high nitrate concentration in drinking water and diarrhea rates**.







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## CONSEQUENCES OF NITRATE POLLUTION

### Effects of nitrate on animal health

- Decline in live weight and milk yield
- Decreased fertility
- Methemoglobinemia





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## **NITRATE ACQUISITION IN WATER**

**The result of nitrate  
accumulation in  
waters is  
eutrophication.**



**The increase in nitrogen and phosphorus compounds, which are plant nutrients in water, causes deterioration of water quality and the balance of flora-fauna in the water, and the extinction of aquatic life, especially fish.**





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## **AGRICULTURAL POLLUTION**

A photograph of a rural landscape. In the foreground, there is a small, narrow stream flowing through a lush green field. The field appears to be a mix of grass and some low-lying plants. In the background, there are rows of crops, possibly corn or soybeans, planted in a grid pattern. Further back, there are some farm buildings and trees under a clear sky.

Since the detection and prevention of agricultural pollution is difficult and time-consuming, the most effective method is to take precautions at the source before pollution occurs.





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## FRIENDLY AGRICULTURAL PRACTICES

This emerging environmental pollution and health problems have led to the **search and development of environmentally friendly production techniques, which are alternative to agriculture**, where input usage is intense in many countries.

While our country is planning agricultural production in the agricultural sector, as in all other sectors, it has adopted the widespread use of environmentally and climate-friendly practices and included in our top policy documents.





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## AGRICULTURAL NITRATE POLLUTION ON POLICY DOCUMENTS

### 11. DEVELOPMENT PLAN

**Measure 406.4.** Measures to prevent water pollution originating from agriculture will be expanded.

**Measure 708.2.** Environmental support and incentives will be increased to increase the quality of life in rural areas and to turn the countryside into protected, livable and productive areas.



### STRATEGIC PLAN 2019-2023



<b>Objective A 4</b>	To ensure the sustainable management of soil and water resources
<b>Target H4.1</b>	Ensuring the protection and efficient use of soil and water resources
<b>Performance Indicator PG 4.1.3</b>	Number of river basins in which nitrate sensitive areas are determined and action plans are prepared (Cumulative)
<b>Performance Indicator PG 4.1.4</b>	The rate of analysis at stations where nitrate monitoring is performed in surface and underground waters (%)
<b>Strategies</b>	Nitrate pollution caused by agricultural activities will be monitored and nitrate sensitive areas will be identified and Action Plans will be prepared to prevent nitrate pollution.



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## LEGISLATION AND EU HARMONIZATION

 EU LEGISLATION	 Turkish National Legislation
<b>“Nitrate Directive”</b> Council Directive 91/676/EEC Concerning the protection of waters against pollution caused by nitrates from agricultural sources	<b>“Regulation on the Protection of Waters Against Nitrate Pollution from Agricultural Origin” was published in the Official Gazette dated 18 February 2004 (Revised 23 July 2016).</b>
<b>Purpose:</b> Detection, reduction and prevention of pollution caused by nitrate of agricultural origin in water.	

### BASIC PROVISIONS OF THE REGULATION

- Identification of contaminated or threatened waters
- Identification of Nitrate Vulnerable Zone
- Preparation of Code of Good Agricultural Practices
- Creation of Agricultural Action Plans
- Establishment of Monitoring Network and Reporting System





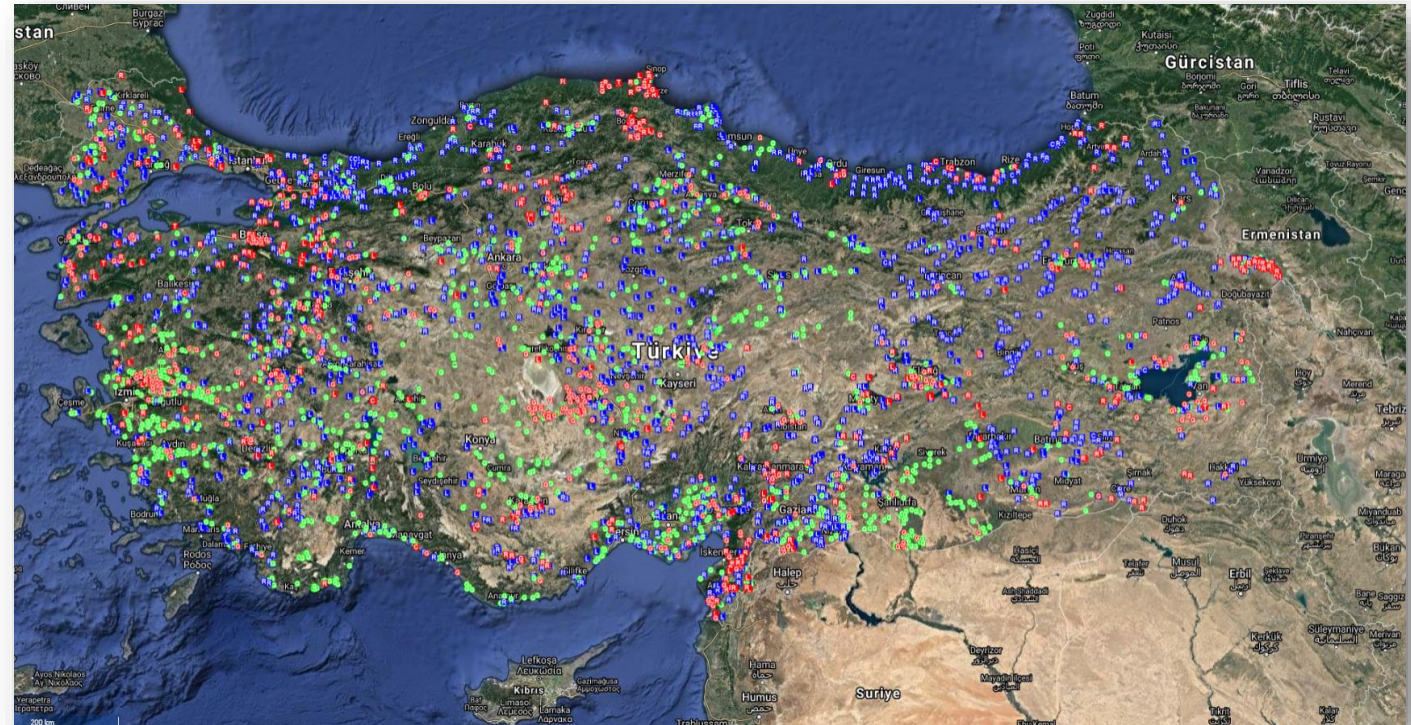
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## DETERMINATION OF CONTAMINATED OR RISK OF POLLUTION

### NITRATE POLLUTION MONITORING STUDIES

It is carried out in order to determine the polluted or threatened waters, to identify the nitrate sensitive areas and to evaluate the effectiveness of the measures implemented after the action plans are implemented.

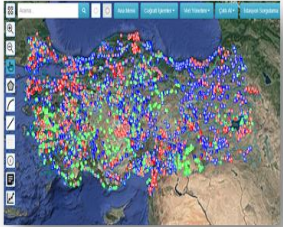




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## MONITORING INFRASTRUCTURE



Monitoring  
network  
which has up  
to 4.846  
points



Web based  
Nitrate  
Information  
System (NİBİS)



Mobile  
laboratory in  
20 provinces



Nitrate  
pollution  
inspection  
vehicle in 10  
provinces



Analysis  
infrastructure  
in 81  
provinces



Nitrate  
working team  
in every  
province





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GROUND WATER	
PARAMETER	MONITORING FREQUENCY
Nitrate (mg/l)	once in a month
Ortho-phosphate (mg/l)	once in a month
Total Phosphorus (mg/l)	once in a month
Total Nitrogen (mg/l)	once in a month
Dissolved Oxygen (mg/l)	once in a month
chlorophyll-a (mg/l)	once in a month
Secchi Disc Depth (m)	once in a month
pH	once in a month
EC (mS/cm)	once in a month
Temperature (°C)	once in a month

## MONITORING PARAMETERS AND MONITORING FREQUENCY

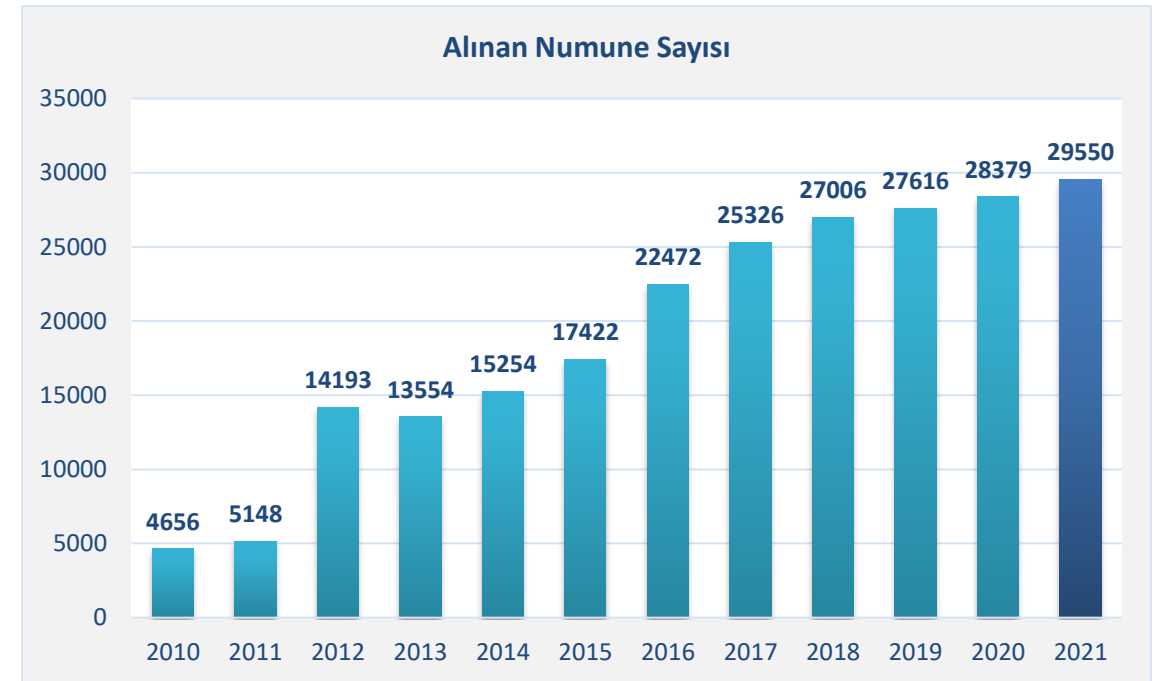
GROUND WATER	
PARAMETER	MONITORING FREQUENCY
Nitrate (mg/l)	Every three month
pH	Every three month
EC (mS/cm)	Every three month
Temperature (°C)	Every three month



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**With the monitoring infrastructure established in our 81 Provincial Directorates, approximately 30,000 samples are taken annually and approximately 200,000 analyzes are performed in different parameters.**





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## NITRATE INFORMATION SYSTEM (NİBİS)

Developed to be used in pollution  
monitoring studies in waters caused  
by agricultural activities;

- Data collection
- Monitoring
- Mapping
- Evaluation
- Reporting



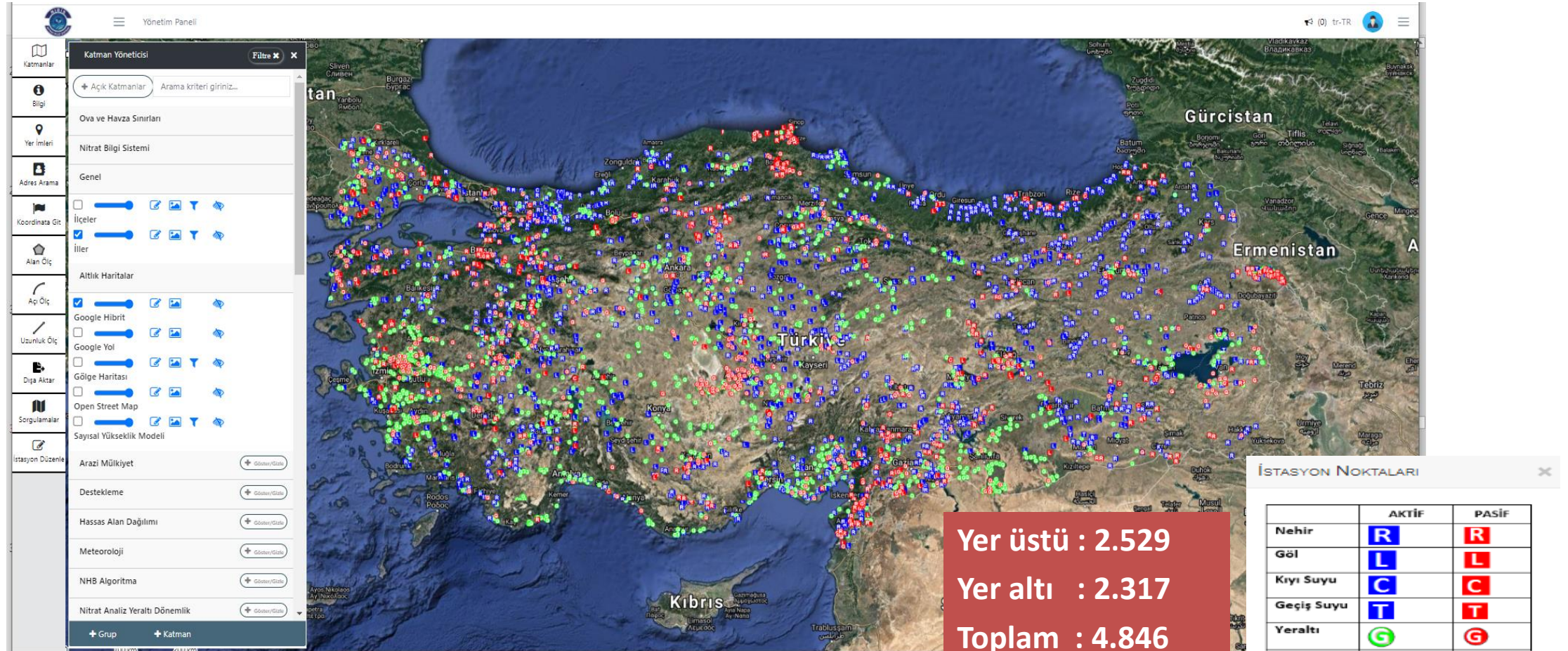




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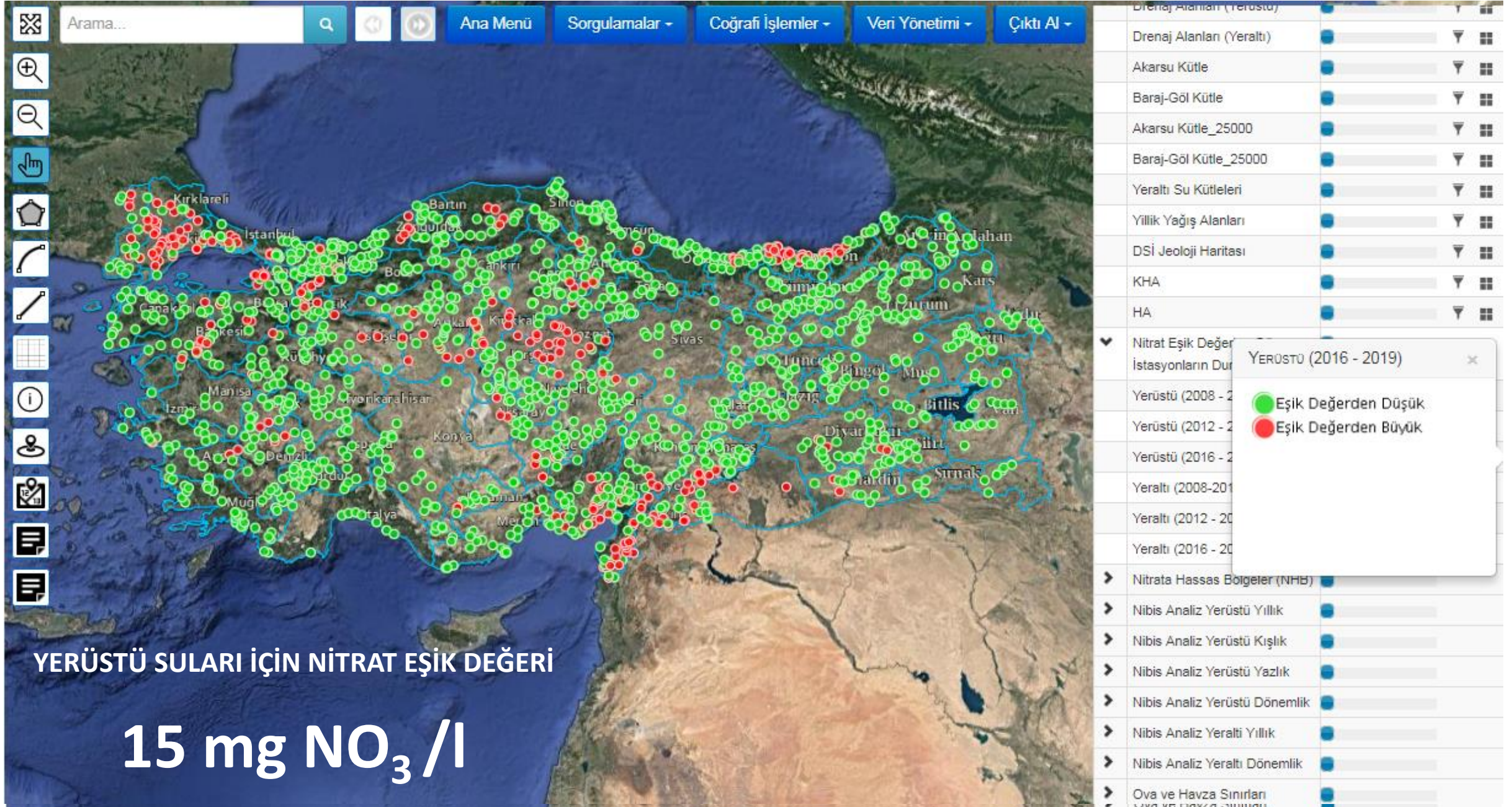
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## NITRATE POLLUTION MONITORING NETWORK



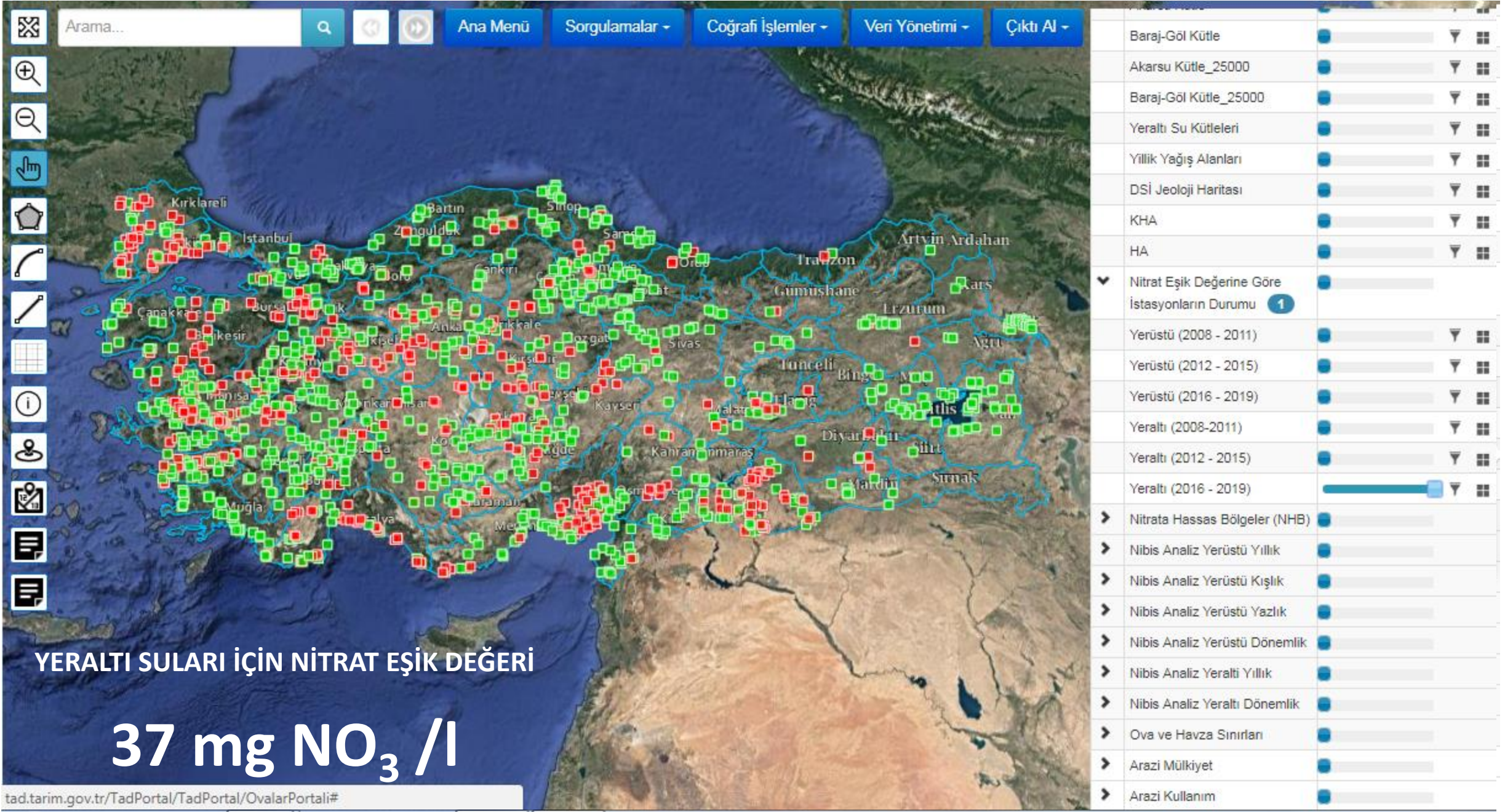


# STATIONS SITUATIONS ACCORDING TO NITRATE THRESHOLD (GROUND WATER)





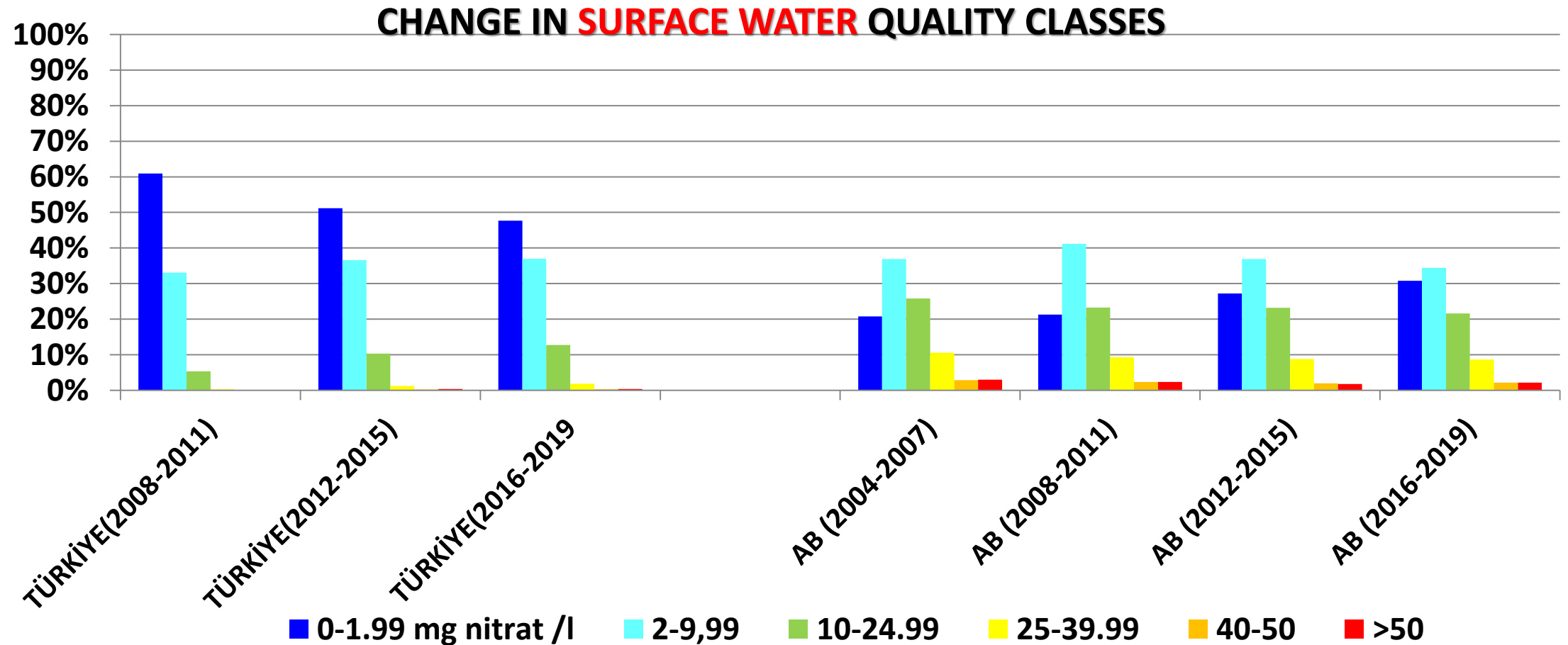
# STATIONS SITUATIONS ACCORDING TO NITRATE THRESHOLD (GROUND-WATER)





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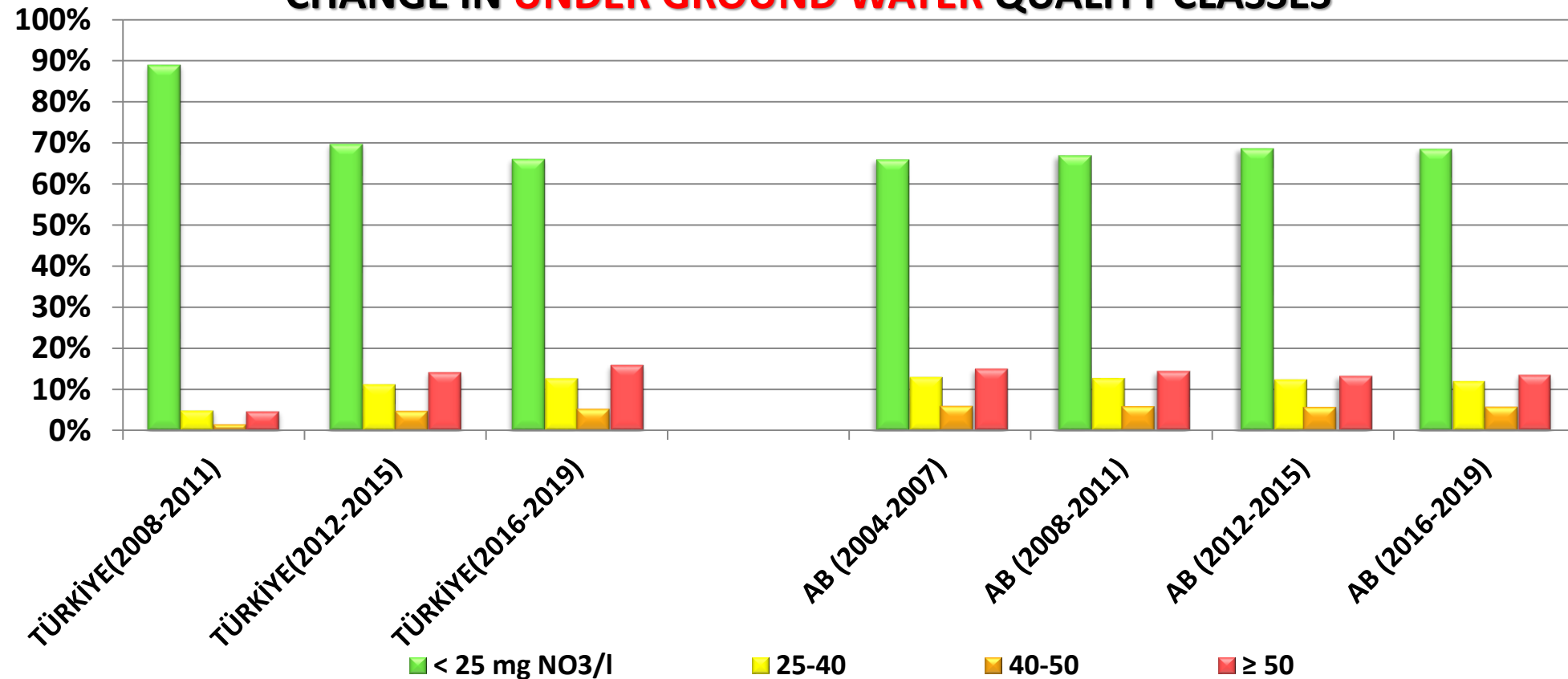




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## CHANGE IN UNDER GROUND WATER QUALITY CLASSES







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## CODE OF GOOD AGRICULTURAL PRACTICES

It was published **in the Official Gazette dated 11.02.2017 and numbered 29976** as an annex to the Code of Good Agricultural Practices on the Prevention of Agricultural Nitrate Pollution Caused in Waters (Communiqué No: 2016/46)

Ek-1



T.C.

TARIM VE ORMAN BAKANLIĞI

İYİ TARIM UYGULAMALARI KODU



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## CODE OF GOOD AGRICULTURAL PRACTICES

It is a framework document that includes measures to be taken by farmers in order to protect water resources against nitrate pollution caused by agricultural activities.







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## CODE OF GOOD AGRICULTURAL PRACTICES

### Agricultural Land Management

- Crop alteration,
- Minimum Vegetation,
- Erosion control and tillage,
- Mulching,
- Anız Yönetimi
- Stubble Management



### Plant Nutrient Management

- Quality and Capacity of Animal Manure Warehouses
- Periods when it is not appropriate to apply fertilizers to the soil
- Fertilizer application conditions on sloping lands, lands close to water sources
- Correct application amount, time and methods of chemical and animal manure
- Fertilization Plans and Manure Used Records,





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## CODE OF GOOD AGRICULTURAL PRACTICES

### Plant Protection Products Management

- Use of correct product
- Control of packaging waste

### Irrigation Management

- Irrigation Management to Prevent Agricultural Pollution

### Training, Awareness and Business Records

- Farmer training and extension
- Recording of business entries







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## **NITRATE VULNERABLE ZONE**

### **Nitrata Vulnerable Zone;**

**Terrestrial regions affecting natural freshwater lakes, other freshwater resources, estuaries and coastal waters that are determined to be eutrophic due to agricultural pollution or that may become eutrophic in the near future if necessary precautions are not taken.**





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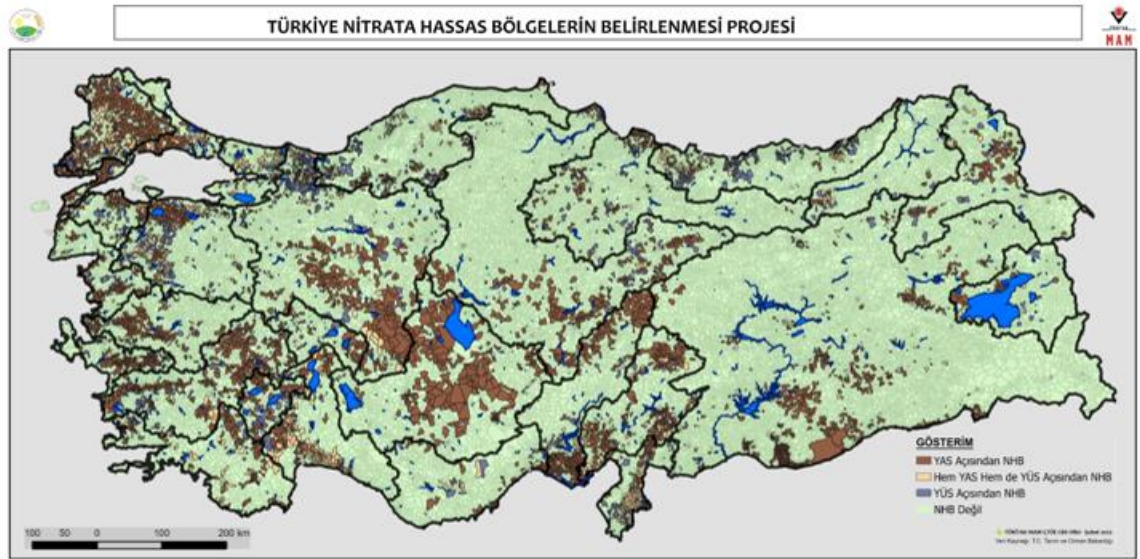
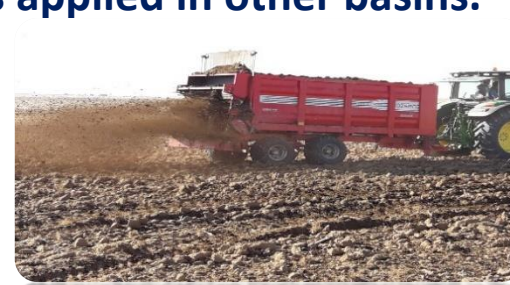
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## DETERMINATION OF NITRATE VULNERABLE ZONES

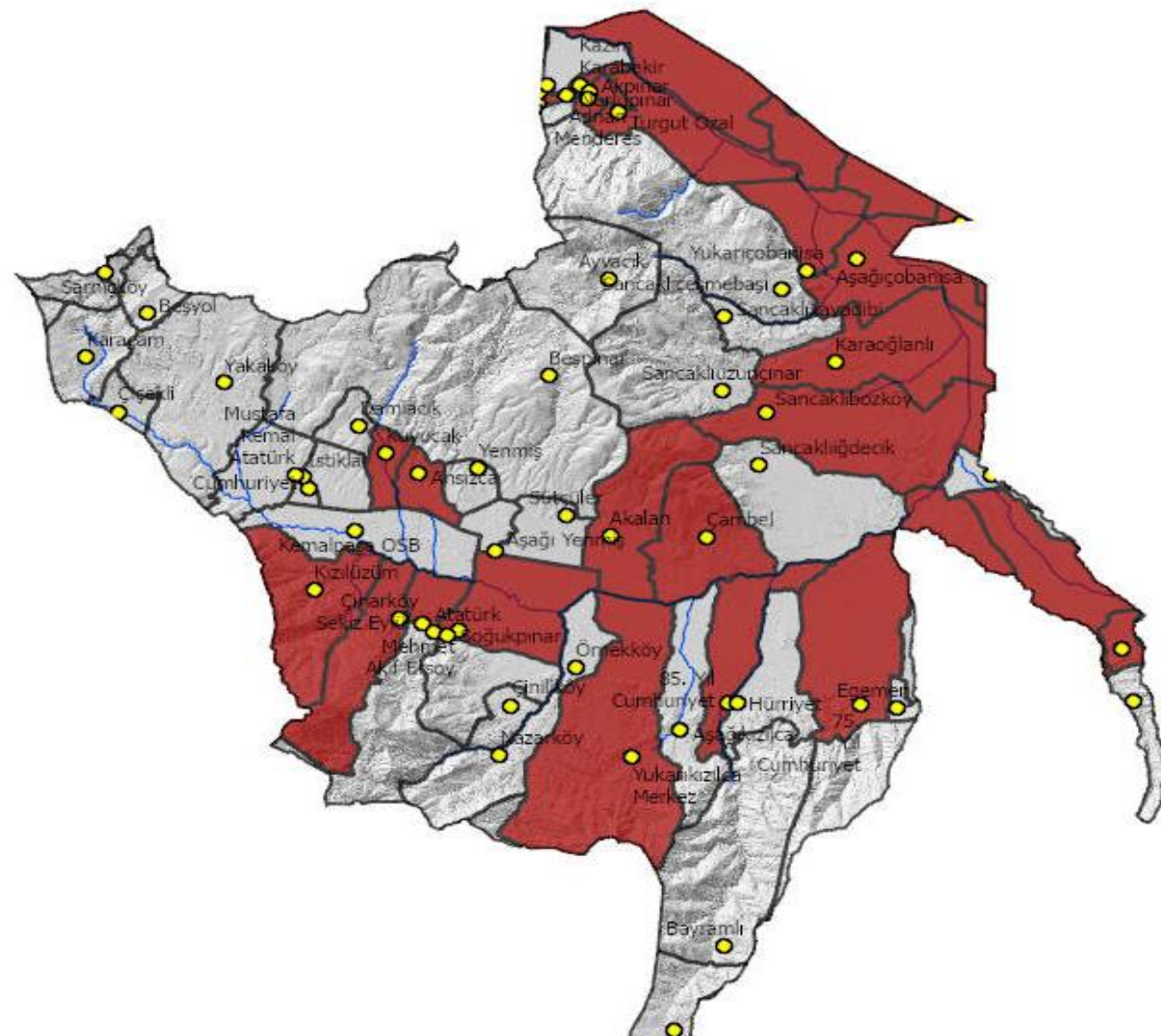
Within the scope of the project carried out with TÜBİTAK MAM, with the work of many experts from different disciplines, in 25 river basins;

- Nitrate Vulnerable Zones (NVB) were determined,
- Nitrate Action Plans to be implemented in NVBs have been prepared
- Benefit/cost analysis of action plans was made

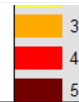
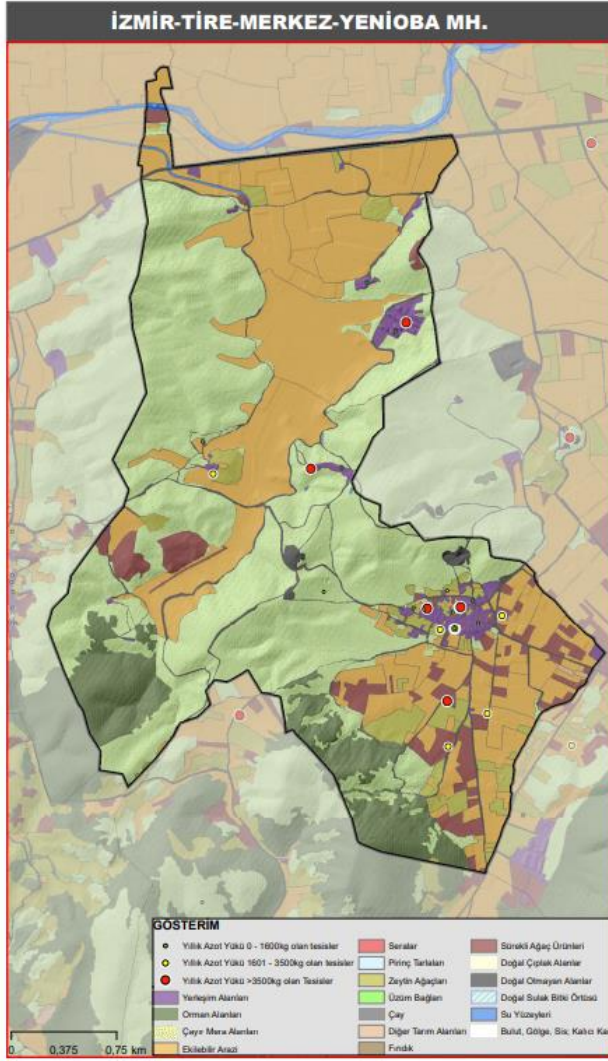
The method created in the Gediz pilot basin in the project was applied in other basins.







# AN OVERVIEW OF NVZ DETERMINATION METHOD





# HYDROLOGICAL POLLUTION SENSITIVITY

## GİRDİLER

1. Yerleşim Merkezleri ve İdari Sınırlar

2. Hidrolojik Toprak Grupları

3. Eğim Durumu

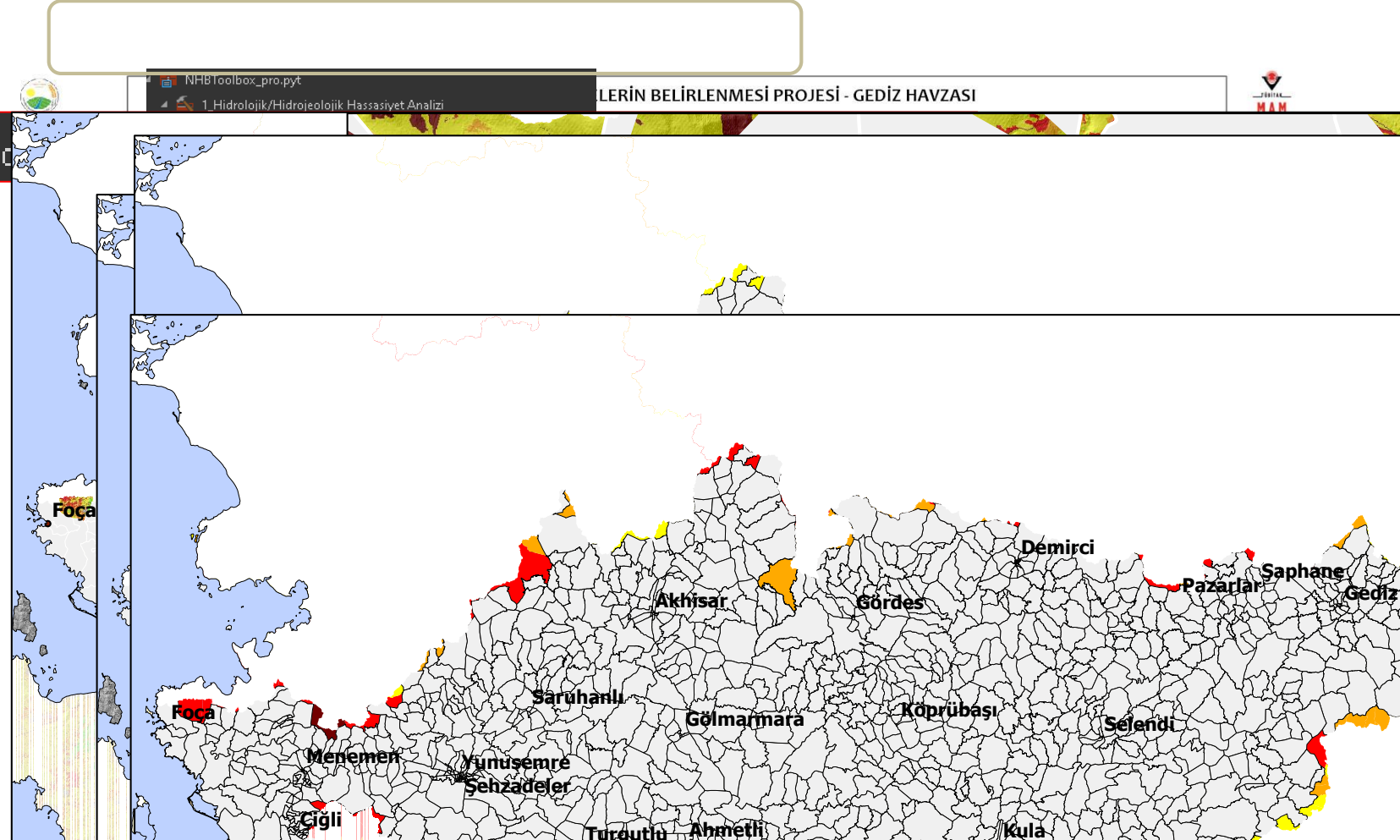
4. Arazi Örtüsü/Arazi Kullanımı (LPIS)

5. Yıllık Ortalama

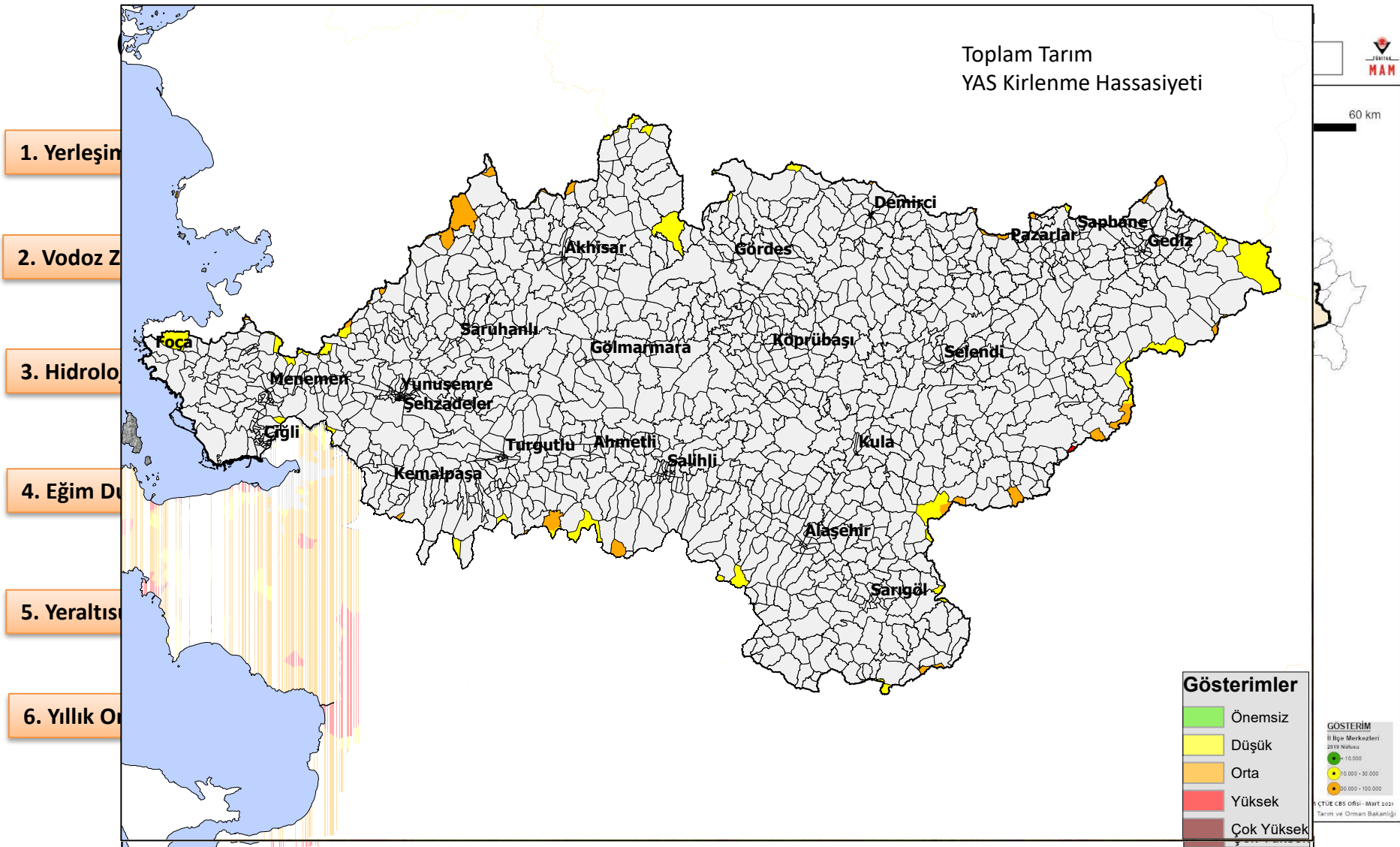
	A Grubu	B Grubu
Eğim:	<2%	2-6%
Orman	0,08	0,11
Çayır	0,14	0,22
Mera	0,15	0,25
Tarım Arazisi	0,14	0,18
Endüstriyel Alan	0,85	0,85
Ticari Alan	0,88	0,88

NHB Araç Kutusu

ÇIKTI

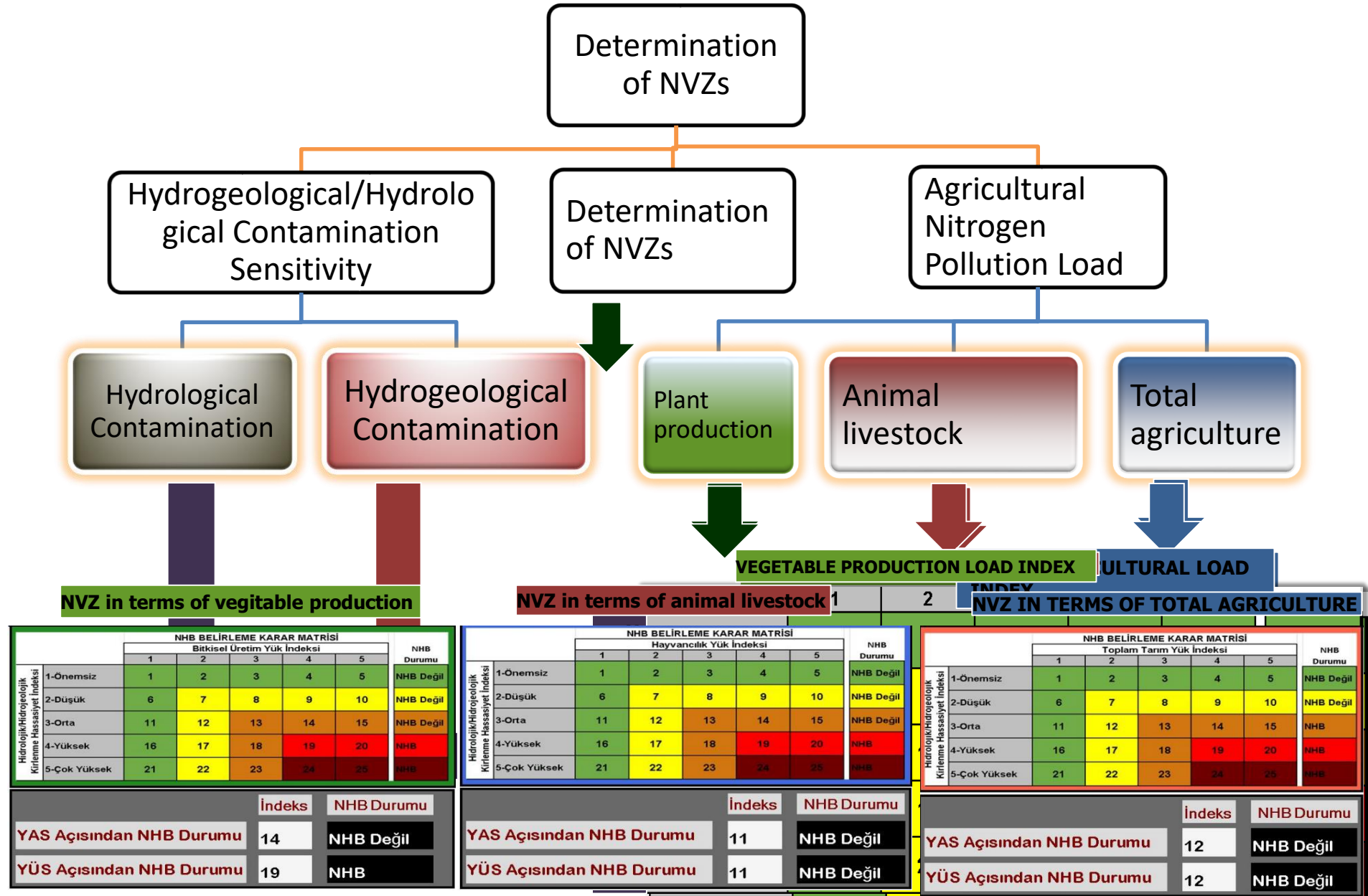


## HYDROLOGICAL POLLUTION SENSITIVITY



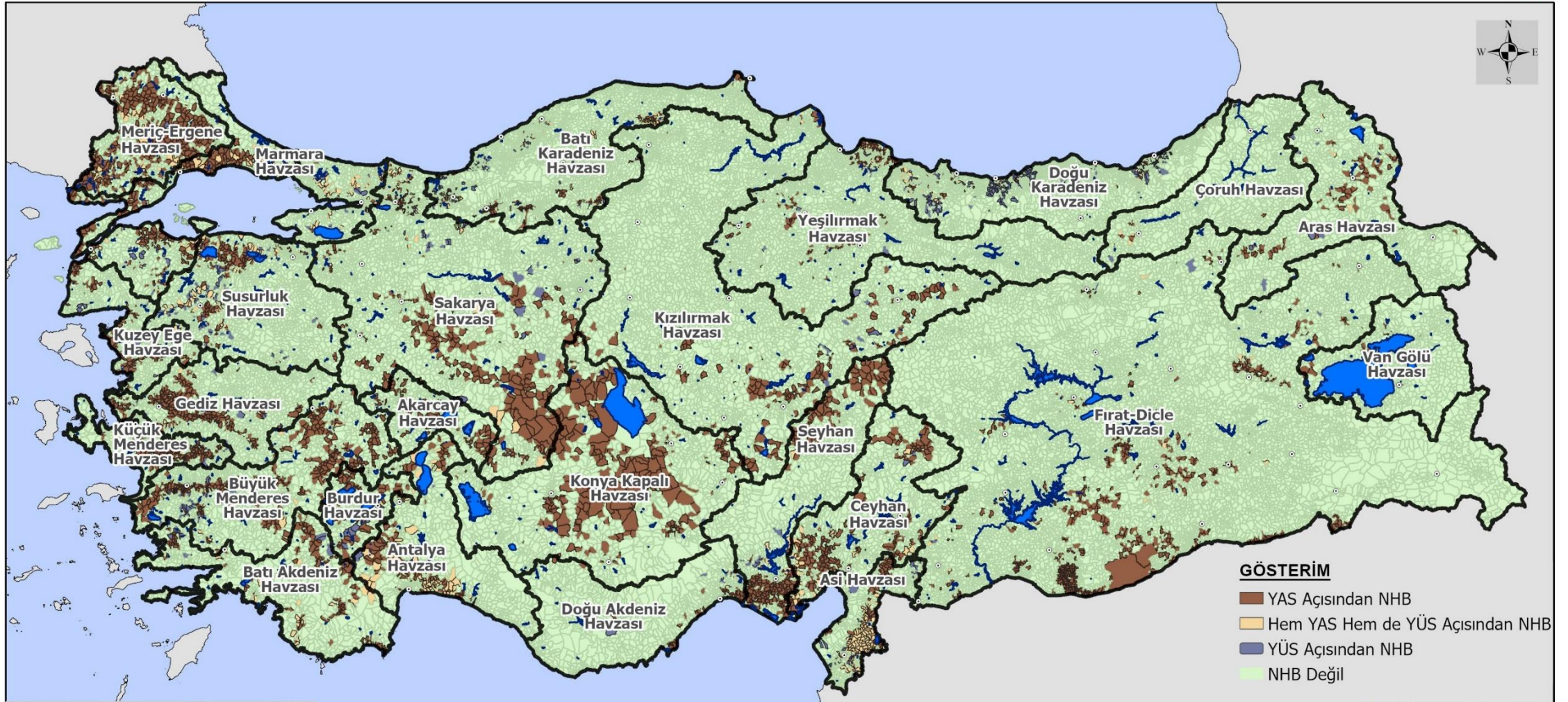


# NVZ DETERMINATION METHOD





# TÜRKİYE NİTRATA HASSAS BÖLGELERİN BELİRLENMESİ PROJESİ



	Number of Settlement	Agricultural field, ha	Number of Livestock Businesses	Number of farms with >1600 kg N/year
25 basin in general	50549	22.674.476,5	3.760.782	221.049
25 basin with NVZ	5499	6.647.538,8	868.583	69.594
NVZ rate in 25 basin,%	10,88	29,32	23,10	31,48





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## NIRATE ACTION PLANS

It includes **measures to prevent nitrate pollution** caused by agricultural activities in nitrate-sensitive areas.

- **The Code of Good Agricultural Practices** was taken as a basis in determining the measures.
- The measures have been determined **based on the settlement.**



# SETTLEMENT-BASED NITRATE SENSITIVE REGION AND NITRATE ACTION PLAN

## Genel Bilgiler

İli :	Manisa	<b>NHB DURUMU</b>  <b>NHB</b>
İlçesi :	Alaşehir	
Köyü :	Merkez	
ADI :	Baklacı Mh.	
Yüzölçümü (km2) :	13	

## Hayvancılık Faaliyetleri

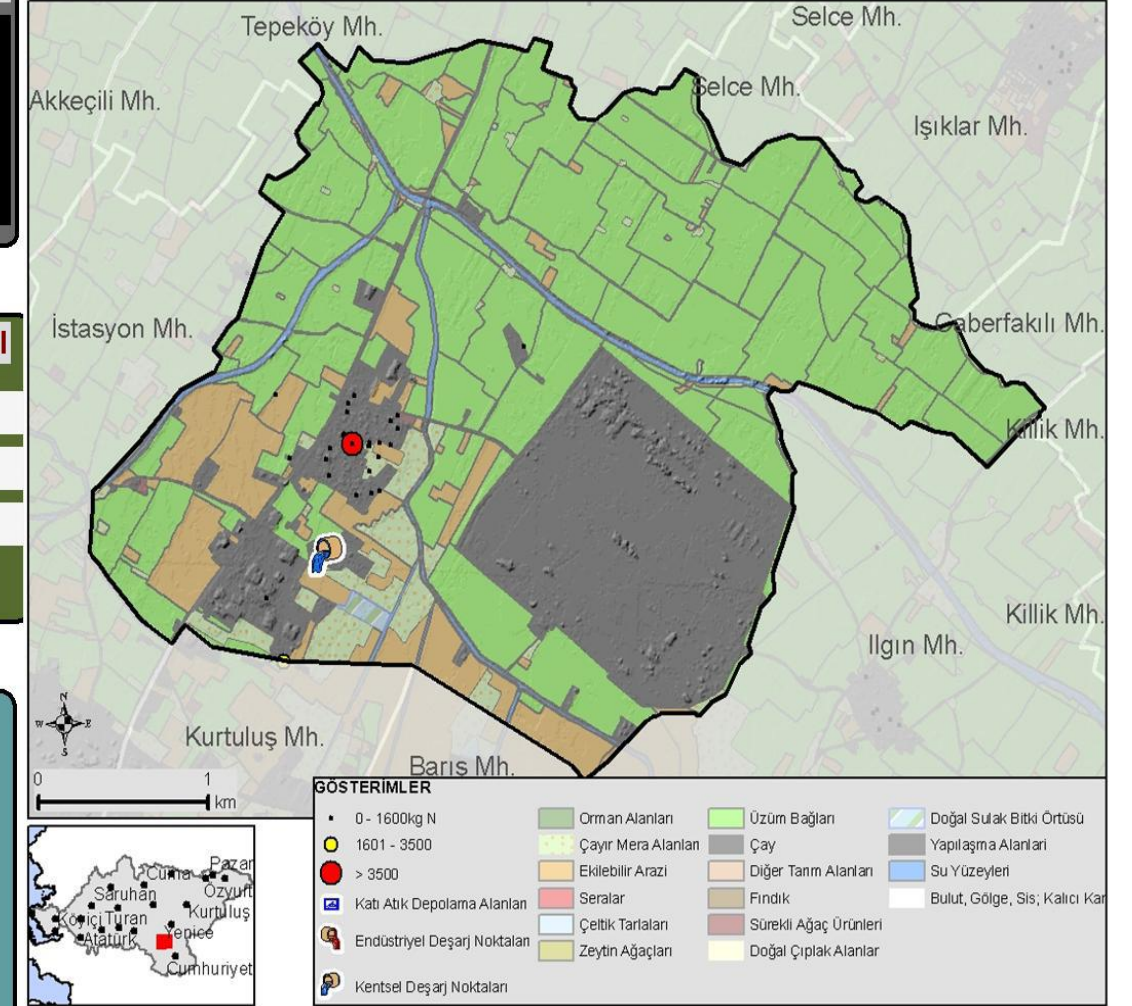
TESİSLER	Adet	TN_kg/yıl	HAYVAN SAYILARI
Yıllık Azot Yüğü 3500 kg'dan Büyük Olan Tesisler	1	35.063	Büyükbaş 136
Yıllık Azot Yüğü 1600-3500 kg Arasında Olan Tesisler			Küçükbaş 420
Yıllık Azot Yüğü 1600 kg'dan Küçük Olan Tesisler	141	9.710	Kümes 20.625
<b>TOPLAM</b>	<b>142</b>	<b>44.773</b>	

## Kentsel ve Endüstriyel Faaliyetler

KENTSEL		ENDÜSTRİYEL		Düzensiz Katı Atık Depolama	
Türü	TN_kg/yıl	Adet	TN_kg/yıl	Adet	TN_kg/yıl
Kentsel AAT					
Doğrudan Deşarj					
Foseptik	1.323				
<b>Toplam</b>	<b>1.323</b>				

## Bitkisel Üretim Faaliyetleri

Bitkisel Üretim Alanları (LPIS)	Alan (ha)	Bitkisel Üretimdeki Oranı (%)	Yüzölçümündeki Payı (%)	Bitki İhtiyacı (N)	Çiftçi Alışkanlığı (N)	Bitki İhtiyacı (P2O5)	Çiftçi Alışkanlığı (P2O5)
A0: Ekilebilir Alanlar	132,77	15,3	10,4	18.278	23.088	12.506	10.582



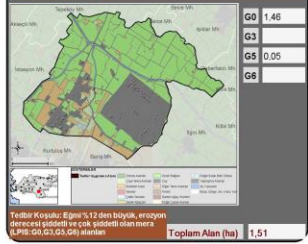
## Kimyasal Gübre Kullanımı Saf AZOT (N) /Saf FOSFOR (P2O5) Yüğü (kg/yıl)



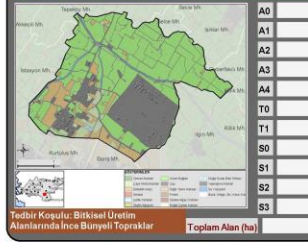
## SETTLEMENT BASED NVZ AND NITRATE ACTION PLANS - VILLAGE CARDS

## ARAZİ YÖNETİMİ

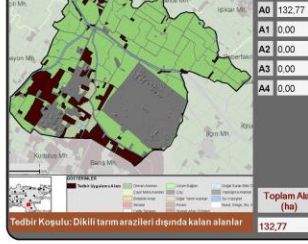
1.1.1.6 Eğimli erozyon riskinin yüksek olduğu yerlerde otaklar sürülmemeli, sürülmesi gereki ise ilkbaharda sürülüp ardından azot ihtiyacı yüksek bitkiler eilmelidir (Kod 1.3)



T.1.1.2 toprak ve hava koşulları uygun olmadığında, hayvansal ve kimyasal gübreler toprağa uygulanmamalıdır (Kod 1.2) ve T.1.2.3 toprak işleme zamanı topraktaki kritik nem oranı dikkate alınarak belirlenmelidir (Kod 1.7)

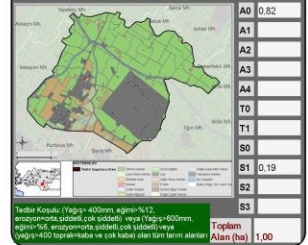


T.1.1.3 Sıvı hayvan gübresi ekim veya dikim zamanından önceki bir hafta içinde uygulanmalıdır (Kod 1.2)

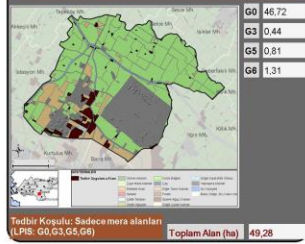


## GÜBRE YÖNETİMİ

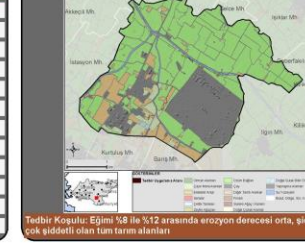
1.2.1.7 Yüksek oranda yağış alan veya sulama yapılan topraklarda, azotu nitrat formunda içeren gübreler, yıkanma riski yüksek olduğundan bölünerek uygulanmalıdır (Kod 2.4)



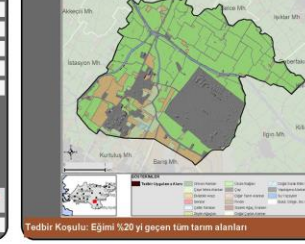
T.1.1.5 Katı hayvan gübresi çayır ve meralara büyüme döneminden önce uygulanmalıdır (Kod 2.9)



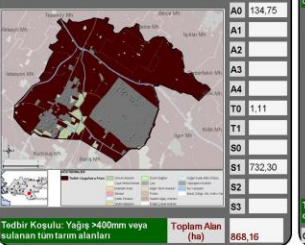
T.1.2.1 Yüzey akış ve erozyon kontrolü için alınacak önlemler; kırık eğri yağış, biki örtüsü ve tekstür dikkate alınarak belirlenmelidir (Kod 1.5)



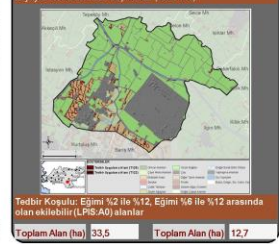
T.1.3.2 Eğin %20'yi geçen arazilerde gübre uygulamaları özel tedbirlerle kalıcı bir örtüsü vb.) alınmak kaydıyla yapılmalıdır. (Kod 2.17)



T.2.1.8 Azotlu gübreler yetiştirme dönemi boyunca uygun miktarlarda bölünerek uygulanmalıdır (Kod 2.20)



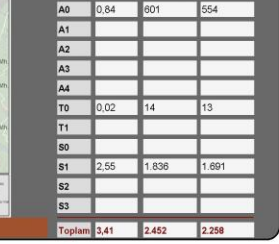
T.1.2.2 Eğimli alanlarda sürümler eğme dik yapılmalıdır (Kod 1.6)  
ve T.1.2.5 Toprak ve suyun korunmasında tercih edilecek örtü  
bitkileri kolay ve hızlı yetişen, kökleri derine uzanan, kuvvetli  
büyüyen bitki türlerinden seçilmelidir (Kod 1.10)



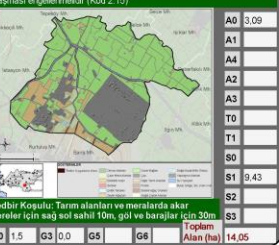
Örtü Bittkisi	Alan (ha)	Fayda (TL)	Maliyet (TL)



(teraslama,	Kalıcı Örtü Bitkisi		
	Alan (ha)	Fayda (TL)	Maliyet (TL)



2.4.1 Akarsular, su yatakları gibi su kaynakları boyunca uzanan azizelerle akışı engelleyici bir yüzey oluşturularak veya şerit halinde kili bir arazi parçası birikimler gübrelerin yıkanarak su kaynaklarına ulaşması engellenmektedir (Kağızçıoğlu, 2015).



	Manisa	
	Alaşehir	
	Merkez	
	Baklacı Mh	
	13	

	Adet	TN_kg/yıl
kg'dan Büyük Olan Tesisler	1	35.063
3500 kg Arasında Olan Tesisler		
kg'dan Küçük Olan Tesisler	141	9.710
	<b>142</b>	<b>44.773</b>

## | Faaliyetler

Alanlar	Alan (ha)	Bittisev Üretimdeki Oranı (%)	Yüzölçü Payı
	132,77	15,3	10,4
	0,00	0,0	0,0
	0,00	0,0	0,0
	0,00	0,0	0,0
	0,00	0,0	0,0
	1,12	0,1	0,1
	0,00	0,0	0,0
	0,00	0,0	0,0
	732,24	84,5	57,8
	0,00	0,0	0,0
	0,00	0,0	0,0
	866,13	100	68,1

**ŞİMDİ NİHA DURUM DEĞERLENDİRMESİ**

**1. GÜRETLİ YÜK İNDEKSİ KARAR MATRİSİ**

Tn (kg/ha)		Yük İndeksi / Etki			
50-100	100-150	150-200	>200		
12	13	14	15	1-Önemli	
22	23	24	25	2-Düşük	
32	33	34	35	3-Orta	
42	43	44	45	4-Yüksek	
52	53	54	55	5-Çok Yüksek	

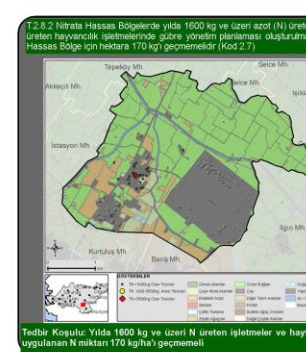
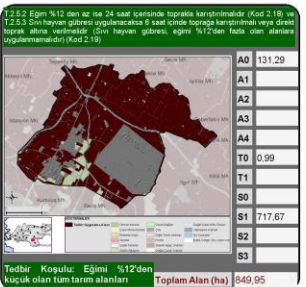
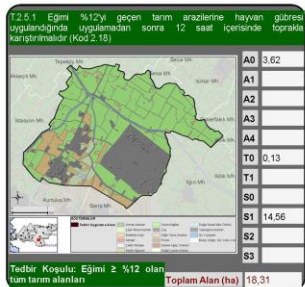
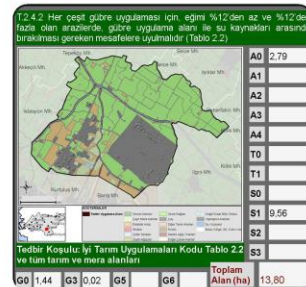
**HAYVANCILIK AÇI**

Tn (kg/ha)	HAYVANCILIK AÇI	
	< 30/38	> 30/38
30/38 - 38/36	21	
38/36 - 21/72	21	
21/72 - 42/60	21	
> 42/60	51	

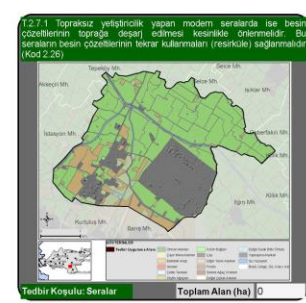
nlj:	143.309	Toplam Azot Yüku (t)	143.309
Alanı (ha):	866	Toplam LPIS Çayır (ha)	866
nl Yüku (kg/ha/yıl):	165	Toplam Çayır ve Bitkisel Hektardaki Toplam	866
ümdeki Payı (%):	68,1	Hayvancılık Yüku M	589,7
Matris Deęeri:	3 4	Nihai Hayvancılık Y	589,7
ık İndeksi / Sınıfı:	4_Yüksek	Bitkisel Üretim ve P	276,3
şaki Hidrojenolilik			

fakı Hidrolojik (YÜS)					3-Orta	
B BELİMLEME KARAR MATRİSİ						
Belirli Üretim Yılı İhtiyacı					HNB	
	1	2	3	4	5	Durumu
2	3	4	5			HNB Deği
7	8	9	10			HNB Deği
12	13	14	15			HNB Deği
17	18	19	20			HNB Deği

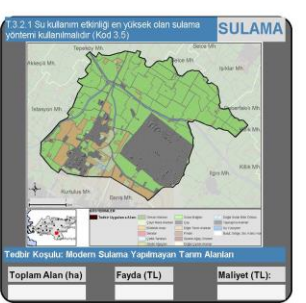
	İndeks	NHB Durumu
Durumu	14	NHB Değil
Durumu	14	NHB Değil



Hayvancılık İşletmelerinde Hayvan Gübresi Depolanarak Üzere Toplanırlar (Kod 2.20) ve T.2.1.3 Nitrata Hassas Bölgeler için yılda 1600 kg ve üzeri azot (Kod 2.3) ve T.2.2.1 Hayvan gübresi (kaki hayvan gübresi, sıvı hayvan gübresi ve sulu hayvan gübresi) ile uygulanan "toplam azot" miktarı, nitrata					
Hayvan Gübresi Depolama	TN < 1600kg	1600-3500kg	TN > 3500kg	TN > 1800kg	Toplam Tesitler
İşletme Sayısı	141		1	1	142
Gerekli Depolama Hacmi (m3)	1.297	0	0	0	1.297
Gerekli Depolama Alanı (m2)	432	0	0	0	432
Taşıma/Yayma için Gerekli Araç Sayısı:	1	1	1	1	1
Yıllık Depolama Maliyeti (TL):	12.971	0	0	0	12.971
Yıllık Taşıma/Yayma Maliyeti (TL):	12.096	9.290	9.290	9.290	13.887
Yıllık Toplam Maliyet (TL):	25.068	0	9.290	9.290	26.858
<b>Kıymasal Gübre Yerinine Hayvan Gübresi Kullanımı</b>					
Tavelsiz Rehberde göre gübre kullanımı (kg N)	120.928	120.928	120.928	120.928	120.928
İşletmelere Ait Toplam N Miktarı (kg)	8.710	35.093	35.093	35.093	44.773
Depolama Sonrası Toplam N Miktarı (kg)	6.312	22.791	22.791	22.791	29.102
Tarım Alanı Başına Hayvan Gübresi Miktarı (kg N/ha)	7	28	28	28	34
Kıymasal Gübre Yerinine Kullanılacak N Miktarı (kg)	6.312	22.791	22.791	22.791	29.102
Fayda (TL):	157.672		314.221	314.221	374.183



T2.1.2. Toprakta uygulanacak gübre miktarı: mufaka toprak analiz raporuna ve bdd inşaatına göre belirlenmelidir (Kod 2.2)	
Çiftçi Aİlkanlığı Gübre Kullanımı (kg N):	143.300
Tavsiye Rehber Gübre Kullanımı (kg N):	120.928
Çiftçi Aİlkanlığı Gübre Kullanımı (kg P):	90.908
Tavsiye Rehber Gübre Kullanımı (kg P):	93.186
Gübrenden Kaynaklanan Fayda (TL):	212.693
Toprak Analiz ADEDİ	174
Toprak Analiz Maliyeti (TL)	10.440
<p><b>Tedbir Koşulu: Tüm Tarım Alanları ve Çiftçi Aİlkanlığı gübre kullanımı Tavsiye Rehber göre kullanımından yüksek ise</b></p> <p><b>İNŞAN SAĞLIĞI (ARITMA) FAYDASI</b></p>	
Nüfus:	1.133
İçme Suyu Tüketim Miktarı (m <sup>3</sup> /gün):	117
İnşan Sağlığı Faydası (TL):	
<p><b>Koşul: Nitrat Parametresi P80 değeri &gt;57,5 mg/L olan suyu</b></p>	



FAYDA VE MALİYET ANALİZİ (ÖZET BİLGİLER) *		FAYDA/MALİYET 24.0		AÇIKLAMALAR
	FAYDA (TL)	MALİYET (TL)	FAYDA (TL/ha) **	MALİYET (TL/ha) **
ARAZİ YÖNETİMİ	10.852	4.562	9	4
GÜBRE YÖNETİMİ	212.693	10.440	167	8
HAYVAN GÜBRESİ YÖNETİMİ	314.221	9.290	247	7
SULAMA				
İNSAN SAĞLIĞI (ARITMA) FAYDASI				
ÇEVRESEL FAYDA	44.409		35	
<b>TOPLAM</b>	<b>582.175</b>	<b>24.292</b>	<b>458</b>	<b>19</b>

\*\* NHB olmayan yerleşimlerde iyi tarım uygulamaları kodunun uygulanması zorunlu olmadığı için Fayda/Maliyet oranı hesaplanmamıştır.

\*\* Fayda ve Maliyet birim değerleri NHB olan yerleşim toplam alanı dikkate alınarak hesaplanmıştır.



This project is co-funded by  
the European Union and the Republic of Turkey.

Protection of Waters Against Agricultural Pollution  
Through Establishment of a Monitoring and Reporting Methodology for the Nitrate Action Plans

## OUR GOAL

**To contribute to the protection and sustainable use of agricultural environment and natural resources within the framework of preventing plant nutrient pollution in waters caused by agricultural activities and adapting to global climate change.**





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**Protection of Waters Against Agricultural Pollution  
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**Thank you..**