



Iraq: Crop Progress Report

MY 2010/11

January Summary

January 29, 2010

- (1) The winter grain (wheat & barley) planting window in Iraq is now closed and crops are actively emerging or in early vegetative growth stages throughout the country. The current outlook for national winter grain production remains uncertain at this early stage, though very favorable rainfall through December provided excellent planting and early growing conditions. Iraqi provincial authorities indicate that national grain area has increased this year, but will not recover to near-normal levels recorded prior to 2008 (Table 1). National wheat area, inclusive of the Kurdish regions, is estimated at 1.47 million hectares (up 22 % from last year, but 23 % below normal), while barley area is estimated at 1.17 million hectares (up 134 % from last year, but down 16 % from normal). These initial acreage reports indicate that national grain production could significantly improve over the past two drought-affected seasons, but also that Iraq is likely to experience a 3rd consecutive below-normal winter grain harvest. The MY 2010/11 grain production outlook is even more in question given a sizable portion of the crop (43 % wheat; 62 % barley) is totally reliant on rainfall. The actual fate of the country's important irrigated grain crops are also uncertain, given a recent history of deficient water supplies from Turkey through both the Tigris and Euphrates watersheds and an announced intention by the Iraqi government to conserve available water supplies and limit irrigated wheat acreage this year. Water storage inside Iraq has also reportedly been insufficient in recent months to warrant normal levels of irrigation distribution for both winter and summer crop production. Irrigated winter grains in Iraq typically receive between one and three irrigation applications per season, with those receiving three irrigations producing the highest yields. A significant reduction in the number of fields receiving optimal irrigation would result in lower than average national irrigated crop yields and lower than expected grain production. The actual harvest outlook, therefore, will depend on how favorable the winter rainfall pattern and irrigation supplies are during the crucial crop development and yield formation periods in upcoming months.
- (2) Cumulative precipitation during the planting period of the MY 2010/11 winter grain growing season was much improved over the past two drought years, being slightly below-normal to normal in most regions (Figure 1). However, the weather pattern changed for the worse in January, resulting in a general degradation in overall moisture availability. Cumulative precipitation for the first two decades (first 20 days) of January 2010 was unfavorably low for most of Iraq, with most areas receiving between 15-50 percent of normal rainfall (Figures 2, 3). The northern rainfed grain growing regions have received the most beneficial rainfall in the country this season and are assumed to have built up stored soil moisture reserves to aid early crop development. A continuation of these rains is required in coming months to enable non-irrigated crops in this previously drought-affected region to get fully established and to yield near-normal levels this year. In the short term, however, the weather forecast

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indicates that the majority of the country will receive little to no rainfall while temperatures will be near to slightly above normal. The only regions forecast to receive light to moderate rainfall are the northern governorates of Ninawa, Dahuk, Arbil, and As-Sulaymaniyah (Figure 4). Parts of the southernmost governorates of An-Najaf, Al-Qadisiyah, Wasit, Maysan, Dhi Qar, and Al-Basrah can expect light rains.

- (3) A review of satellite-derived vegetative index data (NDVI) indicates that winter grain crops emerged throughout the country and showed widespread early growth during January. At the national level, vegetation index data analysis indicates that most northern rainfed and southern irrigated crops are showing similar or better crop development than the previous two years, with the exception of Arbil, Diyala, and small portions of Wasit, Al-Qadisiyah, and Babil governorates (Figures 5, 6, 7, 8). In particular, the marginal or opportunistically cropped western portion of Ninawa showed strong development compared to last year, as well as western Dahuk, southeastern Arbil, and As-Sulaymaniyah (Figure 9). Exceptions to this are some non-grain producing areas (mountainous) of Dahuk, Arbil, and As-Sulaymaniyah which are showing decreased vegetation. When comparing current crop development to the long-term mean (Figures 10 & 11) crop establishment throughout the north is near to slightly above normal, including the core producing areas of Ninawa, Dahuk, and As-Sulaymaniyah. However, Arbil's core south-central producing region, by comparison, is displaying slightly below normal crop conditions. In central and southern Iraq, favorable crop establishment compared to last year and the long-term mean is evident in many of the primarily irrigated regions (Figure 12, 13, 14, 15), with the major exception being the governorates of Diyala and Salah ad Din. Small areas in Wasit, Al-Qadisiyah, and Babil are also displaying less favorable growing conditions. In general, the differences in early season crop development illustrated in these maps provide a cautionary warning that despite very beneficial rainfall so far this year, not all areas are performing well.
- (4) MODIS satellite images of Iraq show that the major winter grain growing regions are greener than last month and last year (Figure 16, 17, 18). This helps confirm that increased rainfall has led to generally favorable crop development nationwide. High resolution Quickbird satellite imagery acquired over the winter grain producing zone in As-Sulaymaniyah shows signs of widespread crop emergence in both rainfed (Figure 19) and irrigated (Figure 20) croplands. Similar imagery acquired over Arbil (Figure 21) also shows healthy winter grain emergence.
- (5) The appendix contains national production maps for wheat (Figure A1) and barley (Figure A2), the crop calendar for Iraq (Figure A3), a winter grains crop classification map for MY 2009/10 (Figure A4), and a map of aboveground Iraqi water resources (Figure A5).

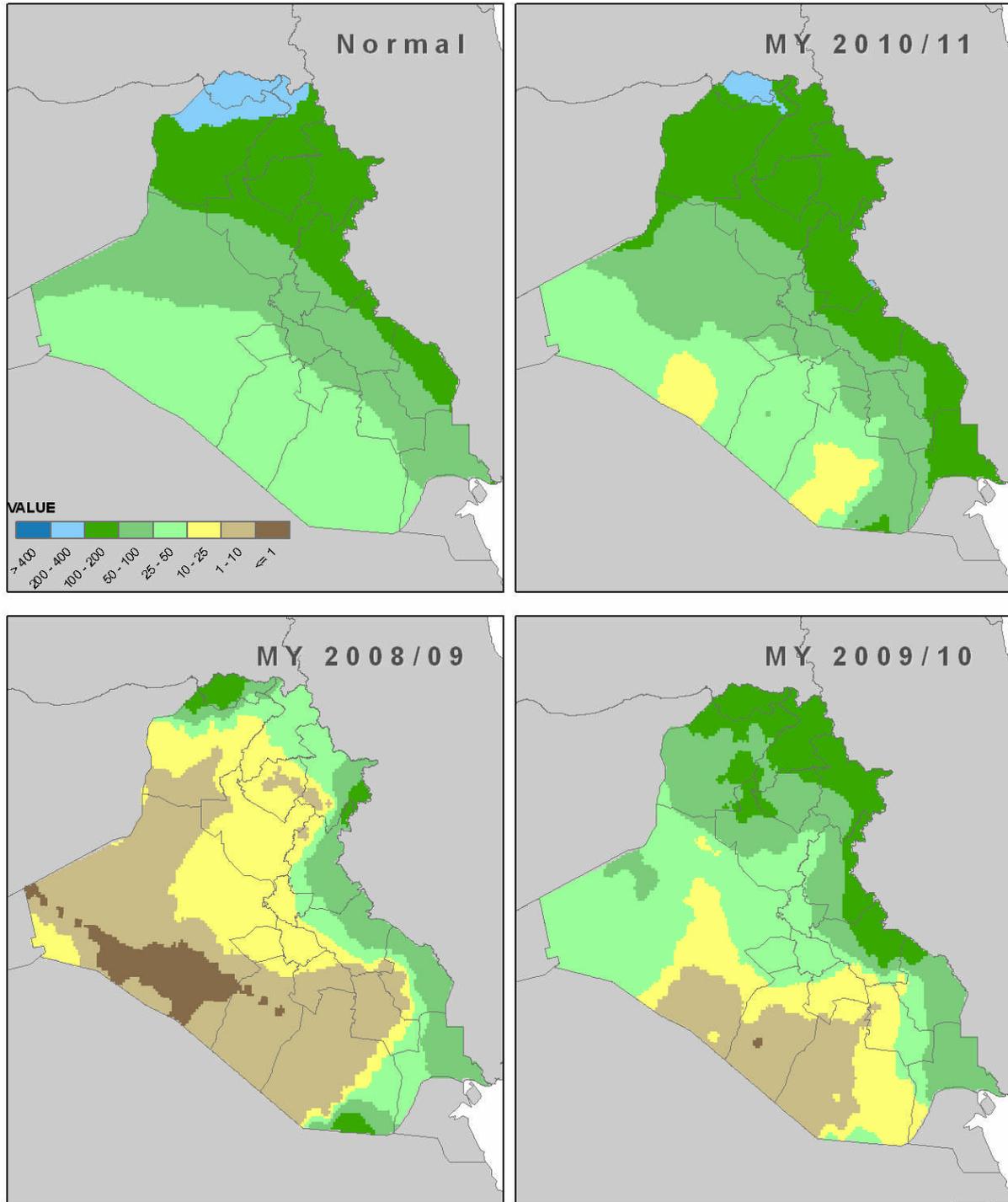
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Table 1. Change in current Market Year planted area vs. the previous two Market Years and the 5-year average. The Kurdish provinces of Arbil, As-Sulaymaniyah, and Dahuk lumped together under “Kurdish Gov.”

Province	Wheat			Barley		
	MY 2010/11 Planted Area (ha)	MY 2007/08 Harvested Area (ha)	Change	MY 2010/11 Planted Area (ha)	MY 2007/08 Harvested Area (ha)	Change
Kurdish Gov.	300,000	340,000	88.2%	300,000	410,000	73.2%
Al Anbar	70,279	56,610	124.1%	5,239	3,000	174.6%
Al Basrah	13,024	16,861	77.2%	2,772	5,000	55.4%
Al Muthanna	11,717	11,242	104.2%	19,280	25,000	77.1%
Al Qadisiyah	83,035	92,408	89.9%	70,009	80,000	87.5%
An Najaf	51,280	49,637	103.3%	2,057	2,000	102.9%
At Ta'min	170,932	205,336	83.2%	39,663	30,000	132.2%
Babil	74,866	65,365	114.5%	23,510	25,000	94.0%
Baghdad	60,178	48,372	124.4%	7,724	5,000	154.5%
Dhi Qar	36,782	59,288	62.0%	56,810	75,000	75.7%
Diyala	28,609	106,180	26.9%	10,164	35,000	29.0%
Karbala	3,573	2,309	154.8%	2,875	3,000	95.8%
Maysan	55,323	94,455	58.6%	54,245	65,000	83.5%
Ninawa	217,205	463,645	46.8%	507,471	615,000	82.5%
Salah ad Din	151,250	107,157	141.1%	14,750	15,000	98.3%
Wasit	140,813	164,245	85.7%	54,825	60,000	91.4%
National	1,468,865	1,883,110	78.0%	1,171,393	1,453,000	80.6%

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Cumulative Precipitation: September 1 - January 20



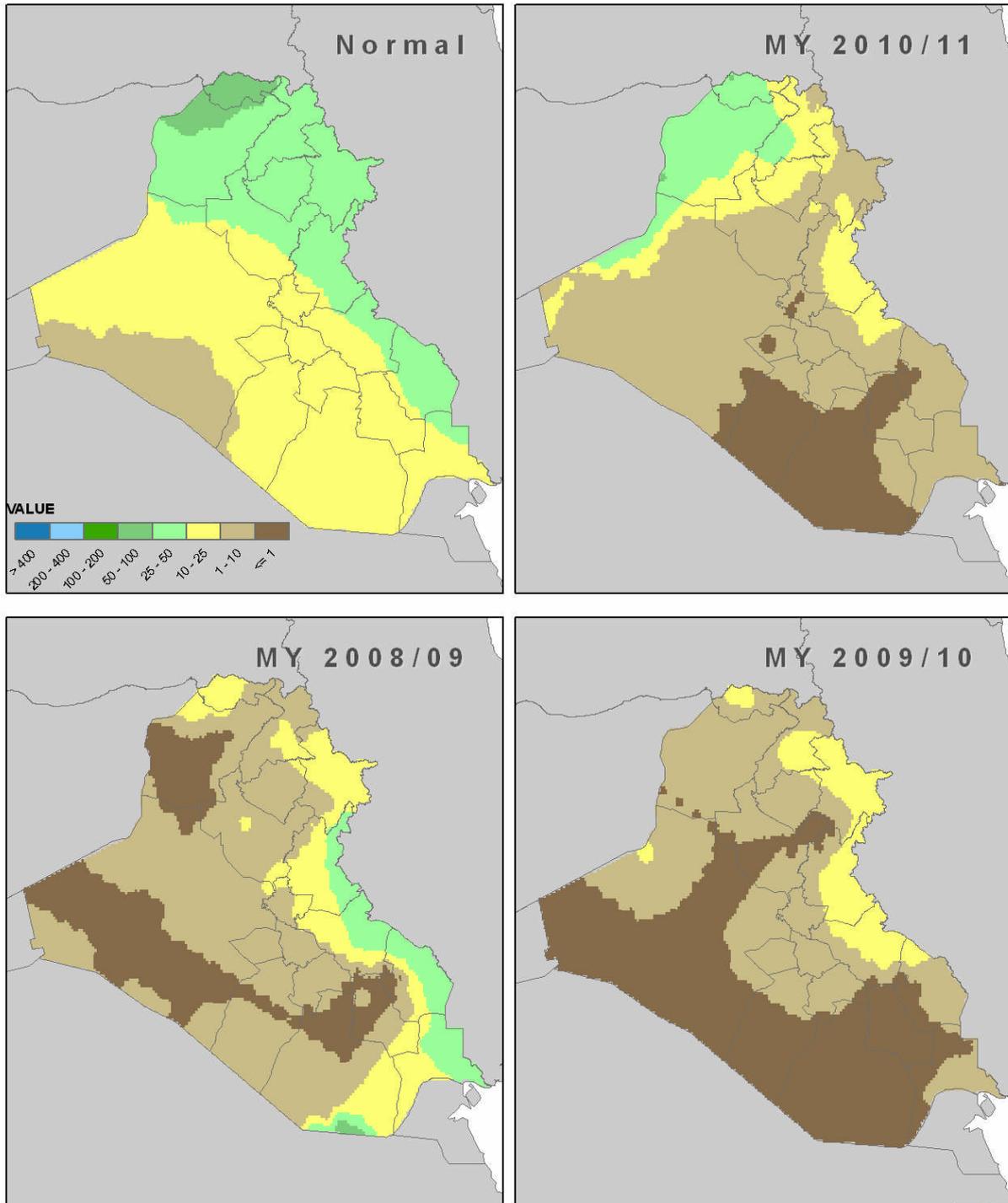
Data Source: AFWA Precipitation
USDA-FAS
Office of Global Analysis



Figure 1. Season to date cumulative precipitation, September 1 to January 20. Current year compared against previous two crop seasons.

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Cumulative Precipitation: January 1 - 20

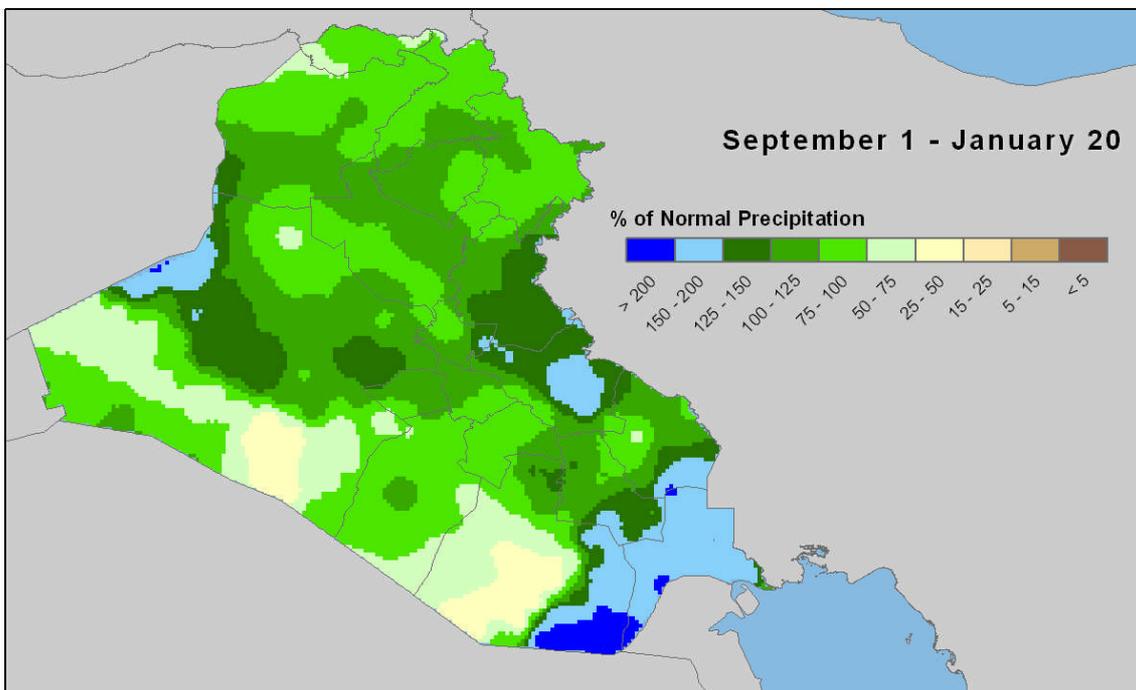
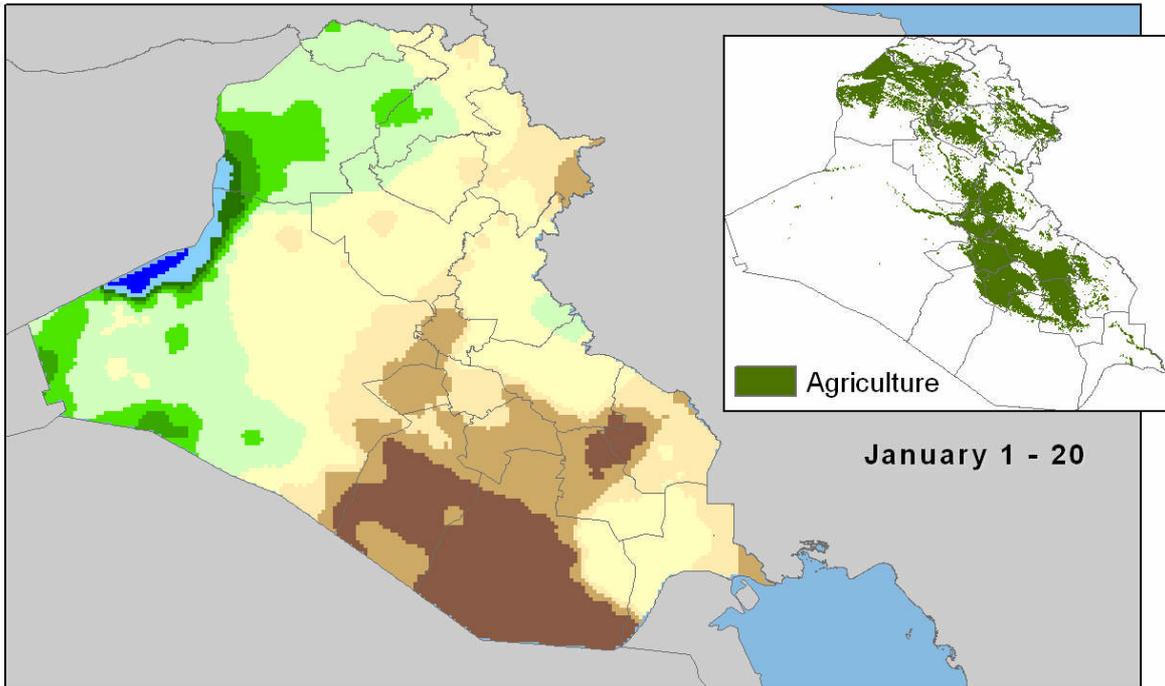


Data Source: AFWA Precipitation
USDA-FAS
Office of Global Analysis



Figure 2. Cumulative precipitation, January 1 - 20. Current year compared against previous two crop seasons.

Percent of Normal Precipitation



Data Source: AFWA Precipitation
USDA-FAS, Office of Global Analysis, IPAD
Crop Explorer

Figure 3. Monthly and season-to-date percent of normal precipitation for MY 2010/11.

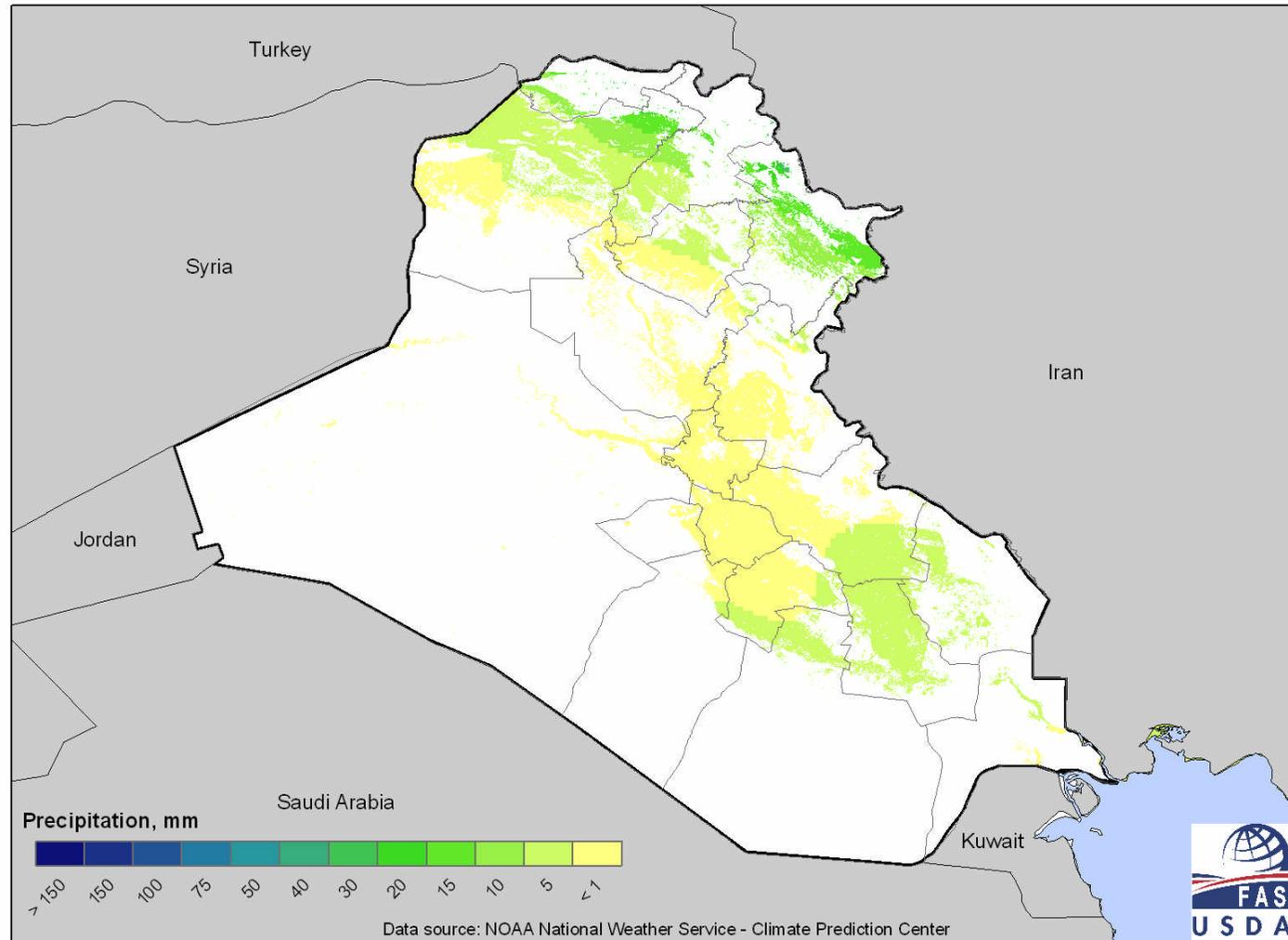
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7-day Precipitation Forecast over Agricultural Lands: January 27 - February 2, 2009



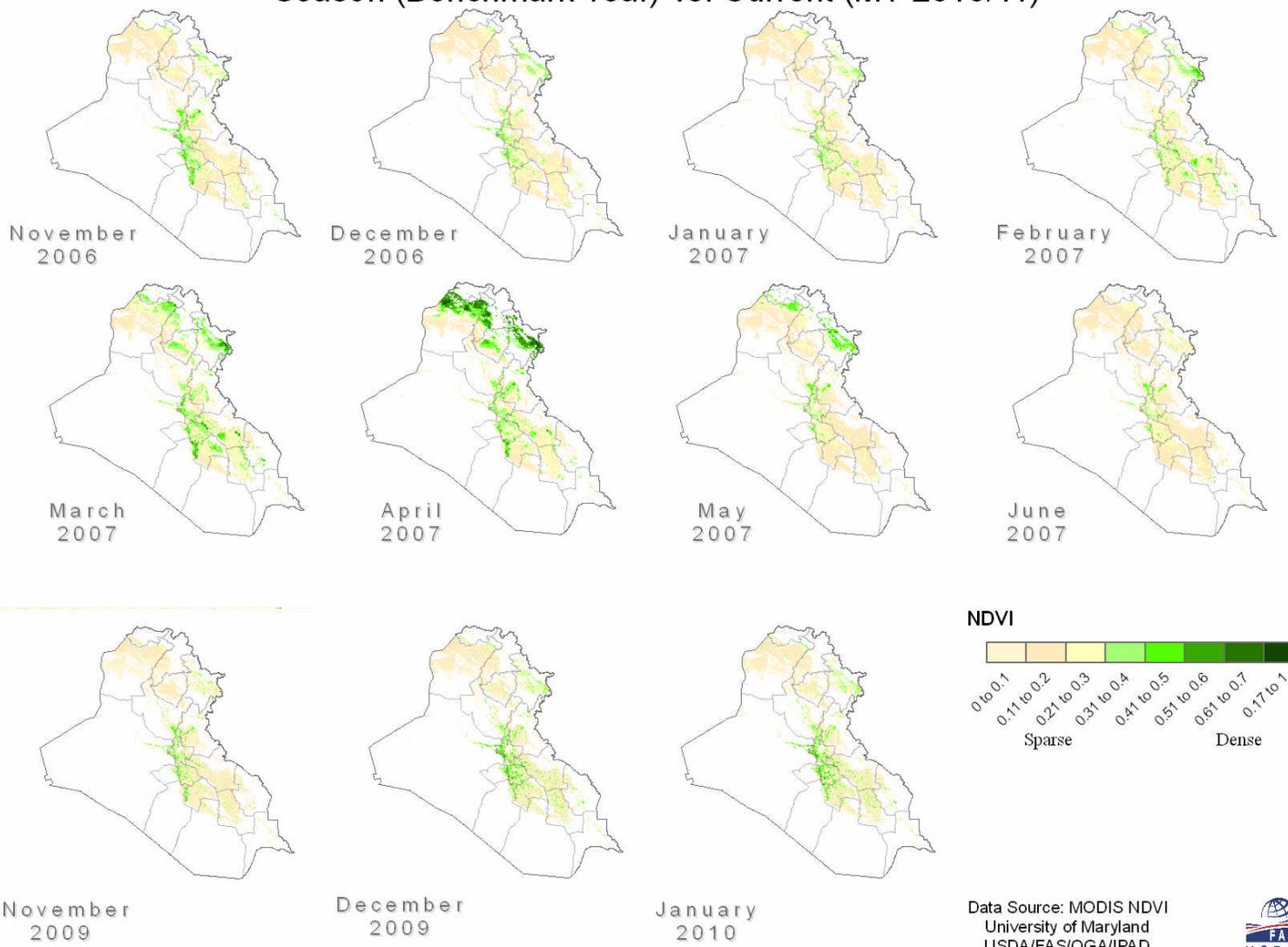
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Figure 4. Seven-day precipitation forecast.

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MODIS NDVI Time Series: MY 2007/08 Winter Grains Growing
Season (Benchmark Year) vs. Current (MY 2010/11)



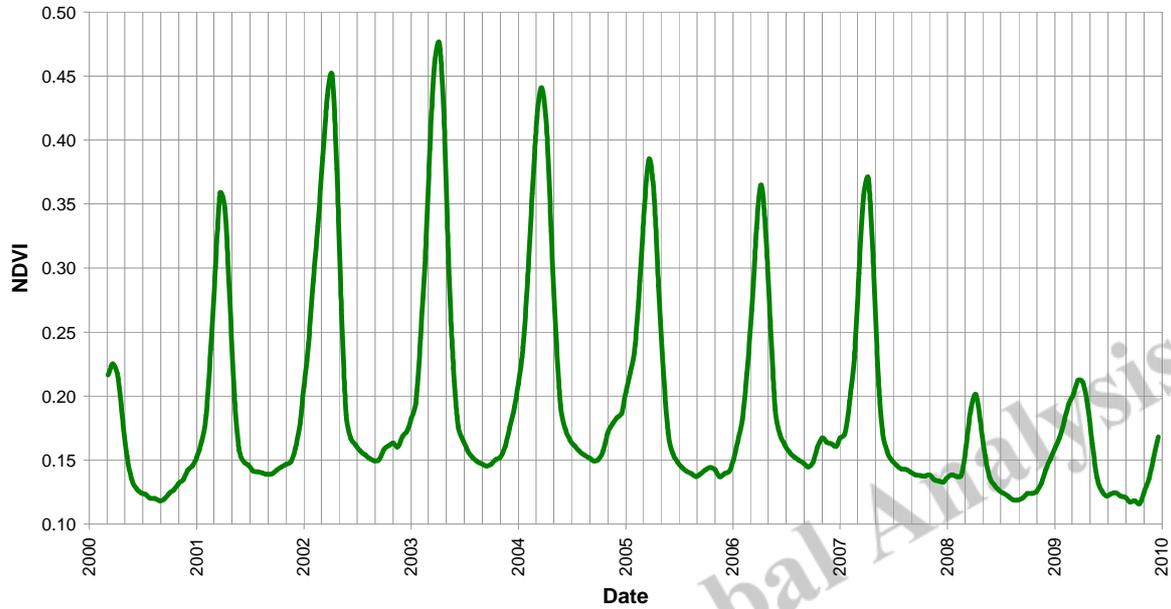
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Figure 5. Vegetation growth through the winter grains growing season.

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Arbil, Iraq Rainfed Agriculture NDVI Time Series



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As-Sulaymaniyah, Iraq Rainfed Agriculture NDVI Time Series

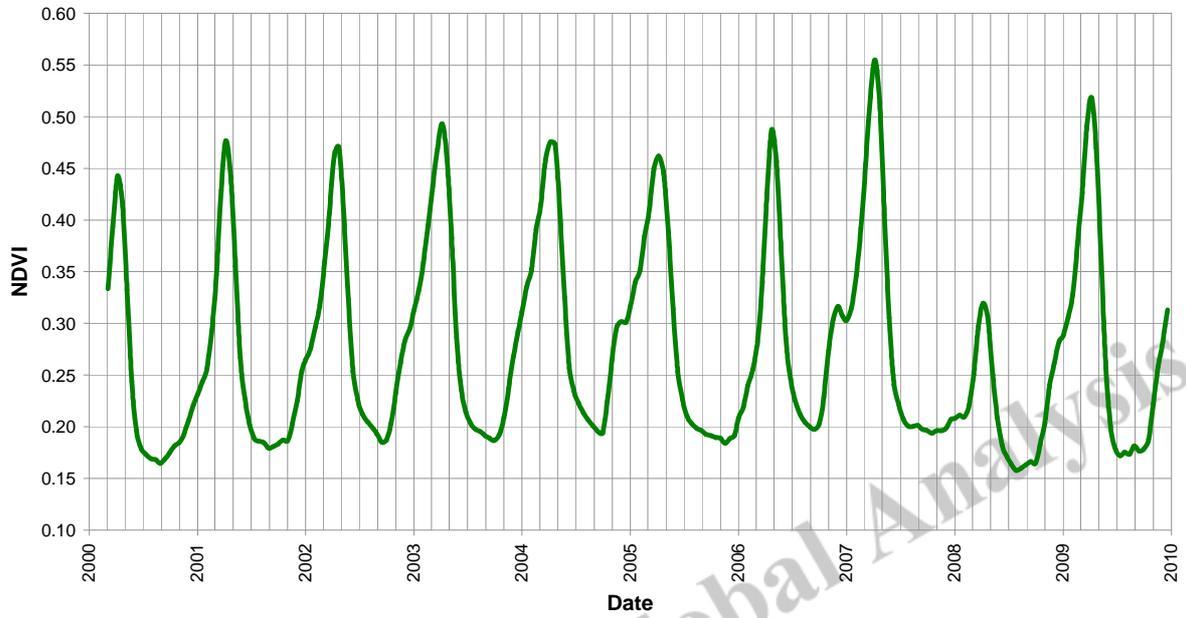
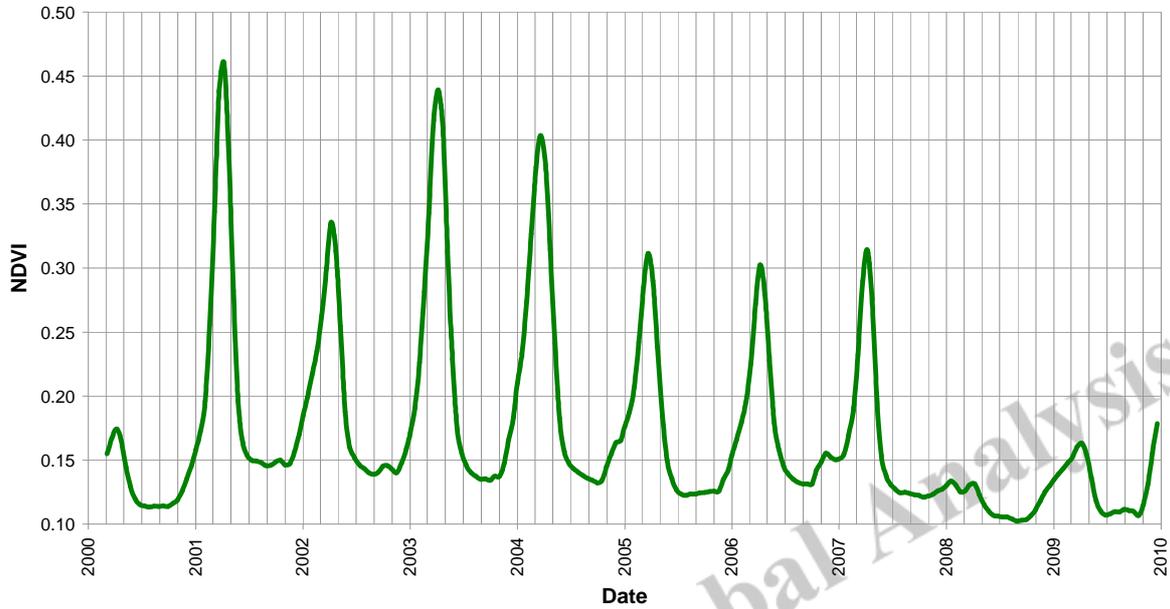


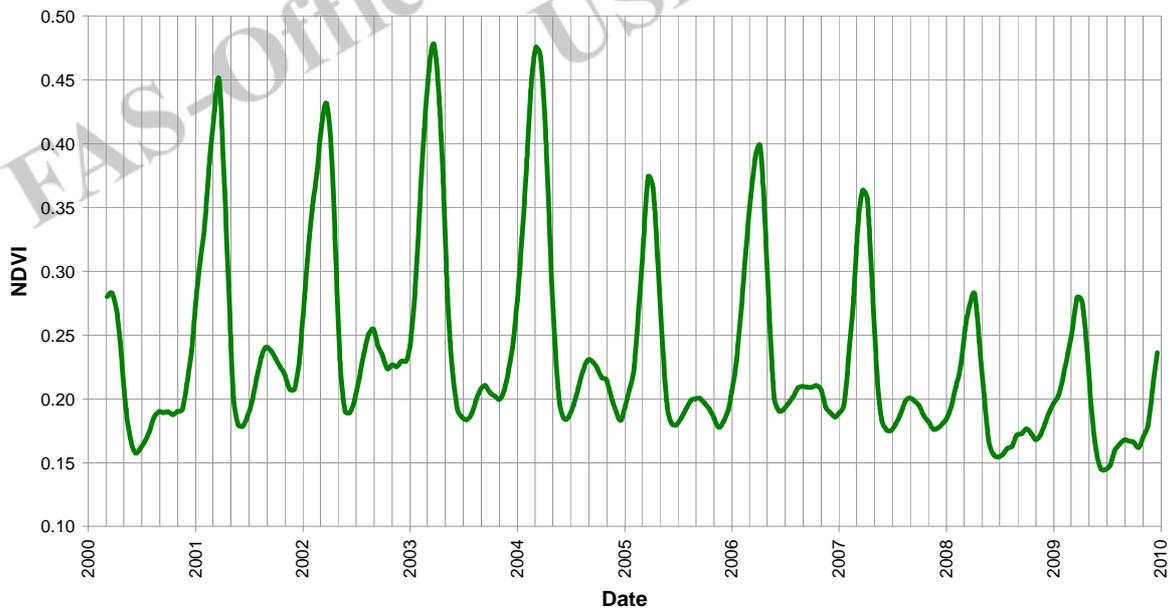
Figure 6a. MODIS NDVI time-series: important northern rainfed agricultural provinces.

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Ninawa, Iraq Rainfed Agriculture NDVI Time Series



At-Tamin, Iraq Rainfed Agriculture NDVI Time Series



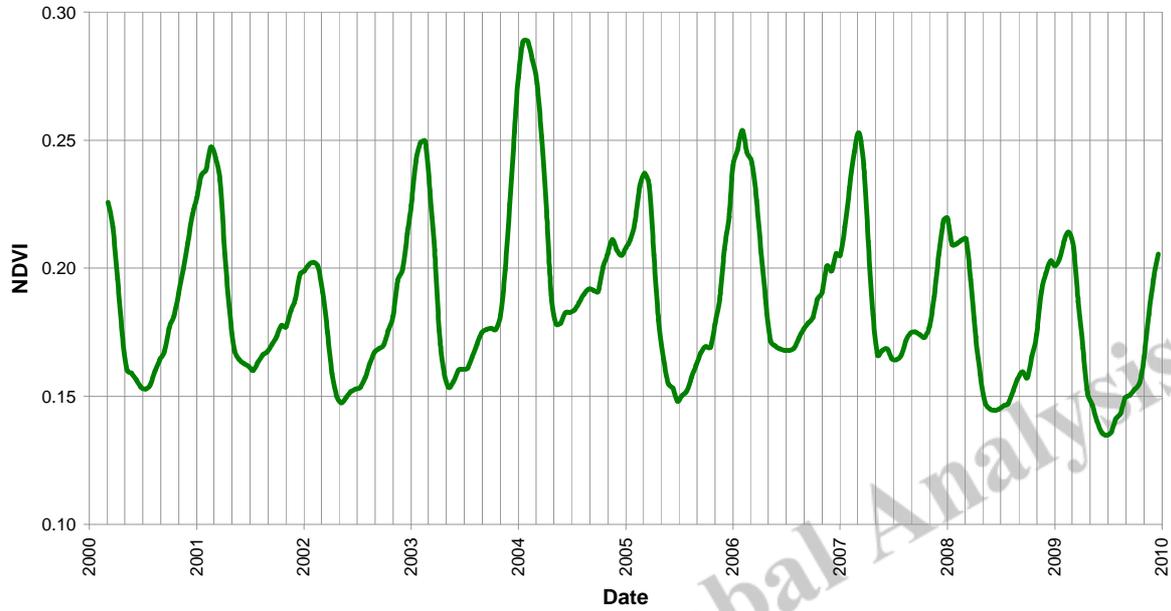
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Figure 6b. MODIS NDVI time-series: important northern rainfed agricultural provinces.

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Al-Qadisiyah, Iraq Irrigated Agriculture NDVI Time Series



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Babil, Iraq Irrigated Agriculture NDVI Time Series

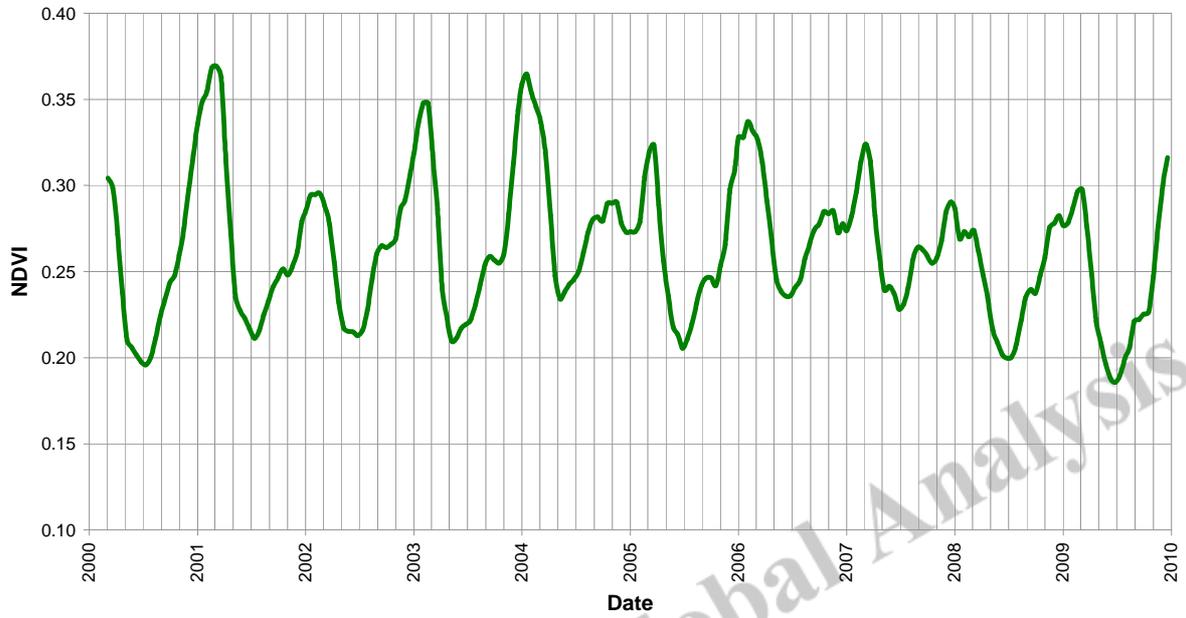
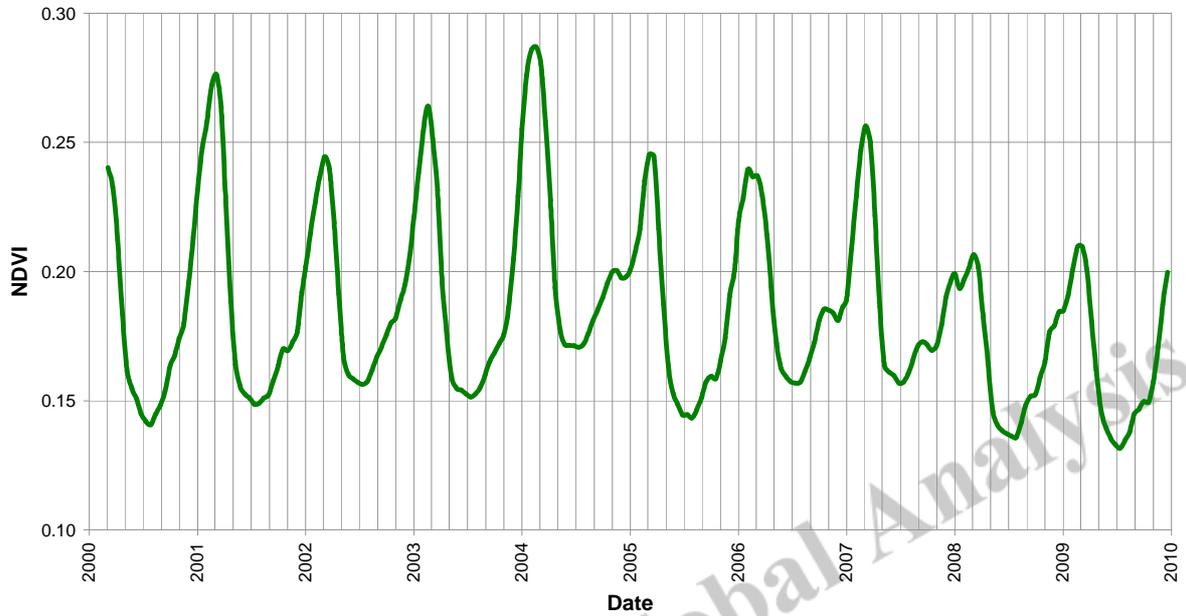


Figure 7a: MODIS NDVI time-series: important southern irrigated agricultural provinces.

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Wasit, Iraq Irrigated Agriculture NDVI Time Series



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Diyala, Iraq Irrigated Agriculture NDVI Time Series

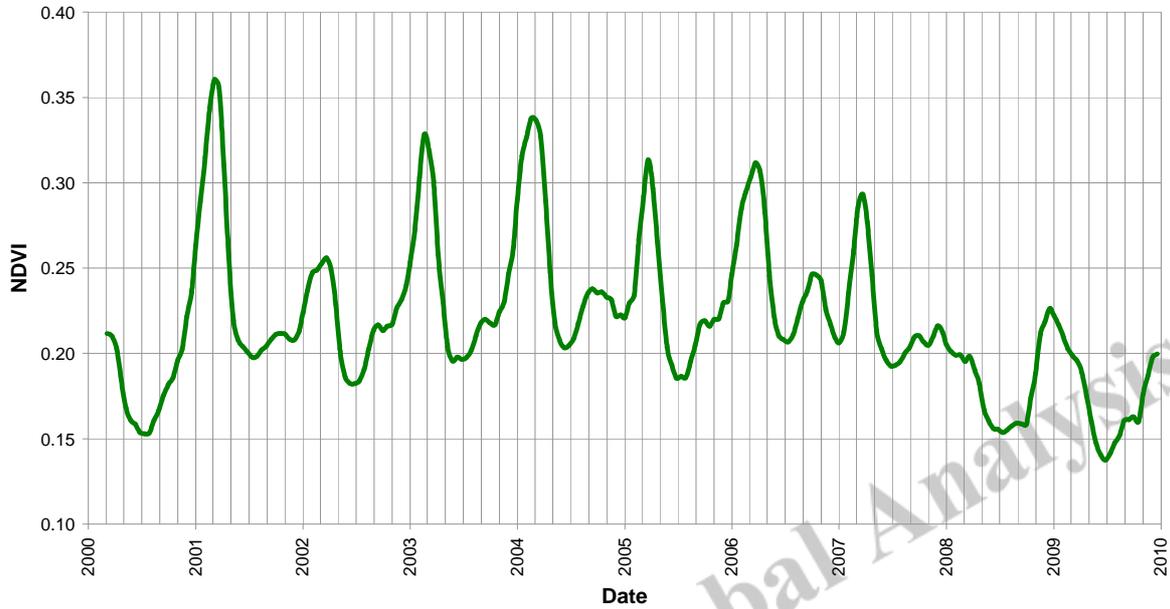
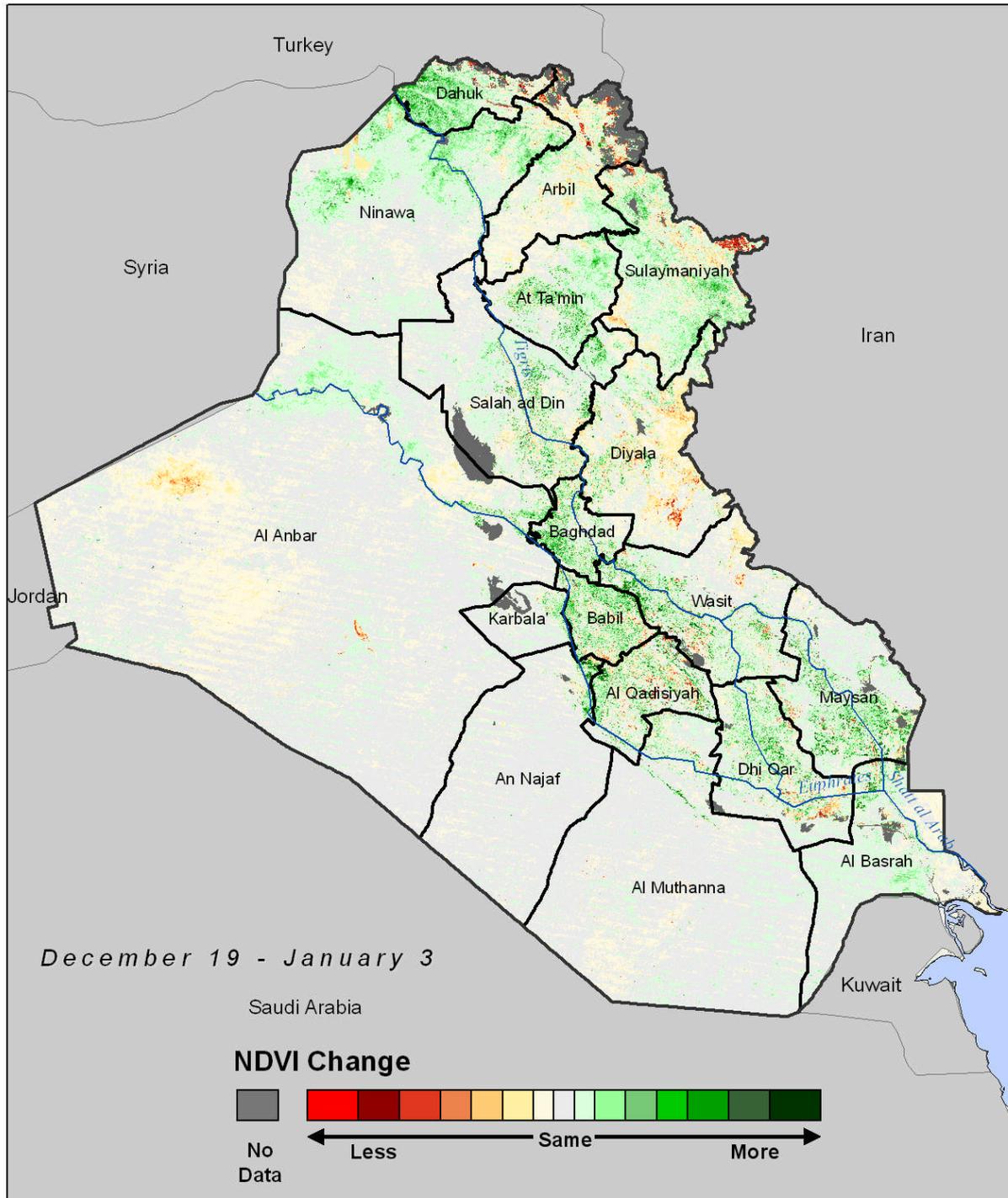


Figure 7b: MODIS NDVI time-series: important southern irrigated agricultural provinces.

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MODIS NDVI Change: MY 2010/11 vs. MY 2009/10

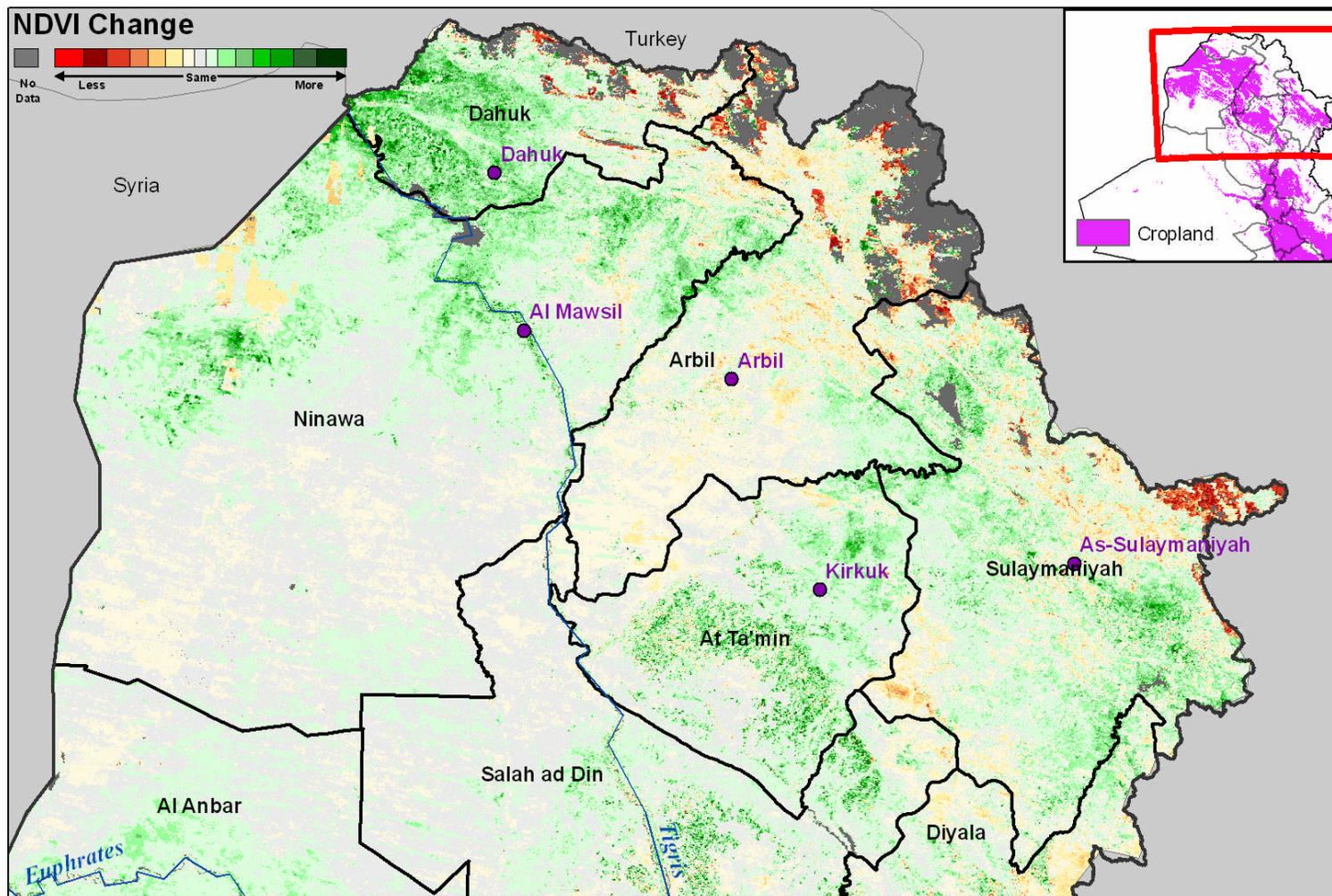


Data Source: MODIS 16-Day NDVI
Data Provided by: University of Maryland
Supporting: USDA/FAS/OGA/IPAD

Figure 8. Change in MODIS NDVI: MY 2010/11 vs. MY 2009/10 drought year.

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MODIS NDVI Change in Northern Iraq: MY 2010/11 vs. MY 2009/10



December 19 - January 3

Data Source: MODIS 16-Day NDVI
Data Provided by: University of Maryland
Supporting: USDA/FAS/OGA/IPAD



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Figure 9. Change in MODIS NDVI for northern Iraq: MY 2010/11 vs. MY 2009/10 drought year.

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MODIS NDVI Change: MY 2010/11 vs. 6 Year Mean

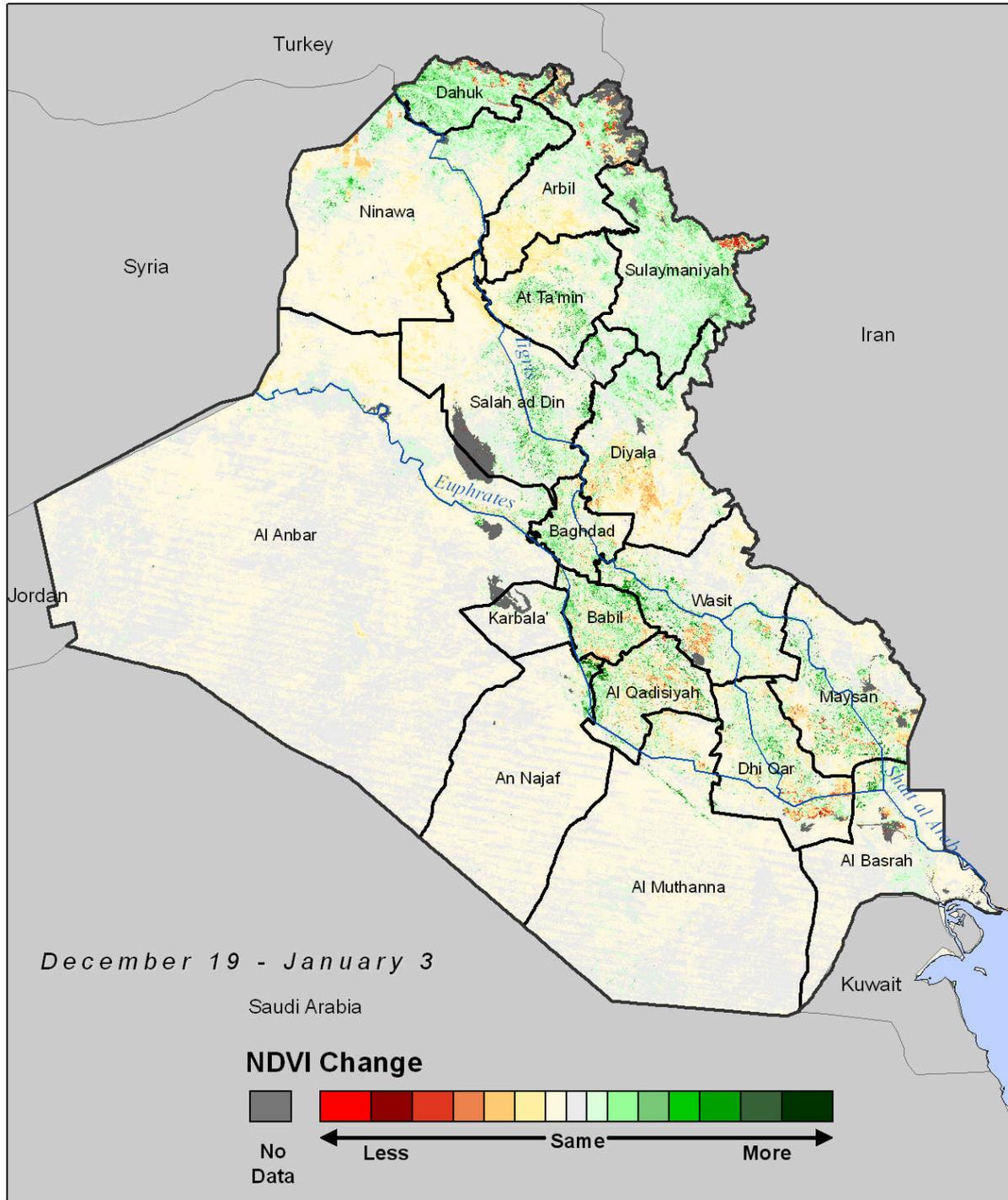
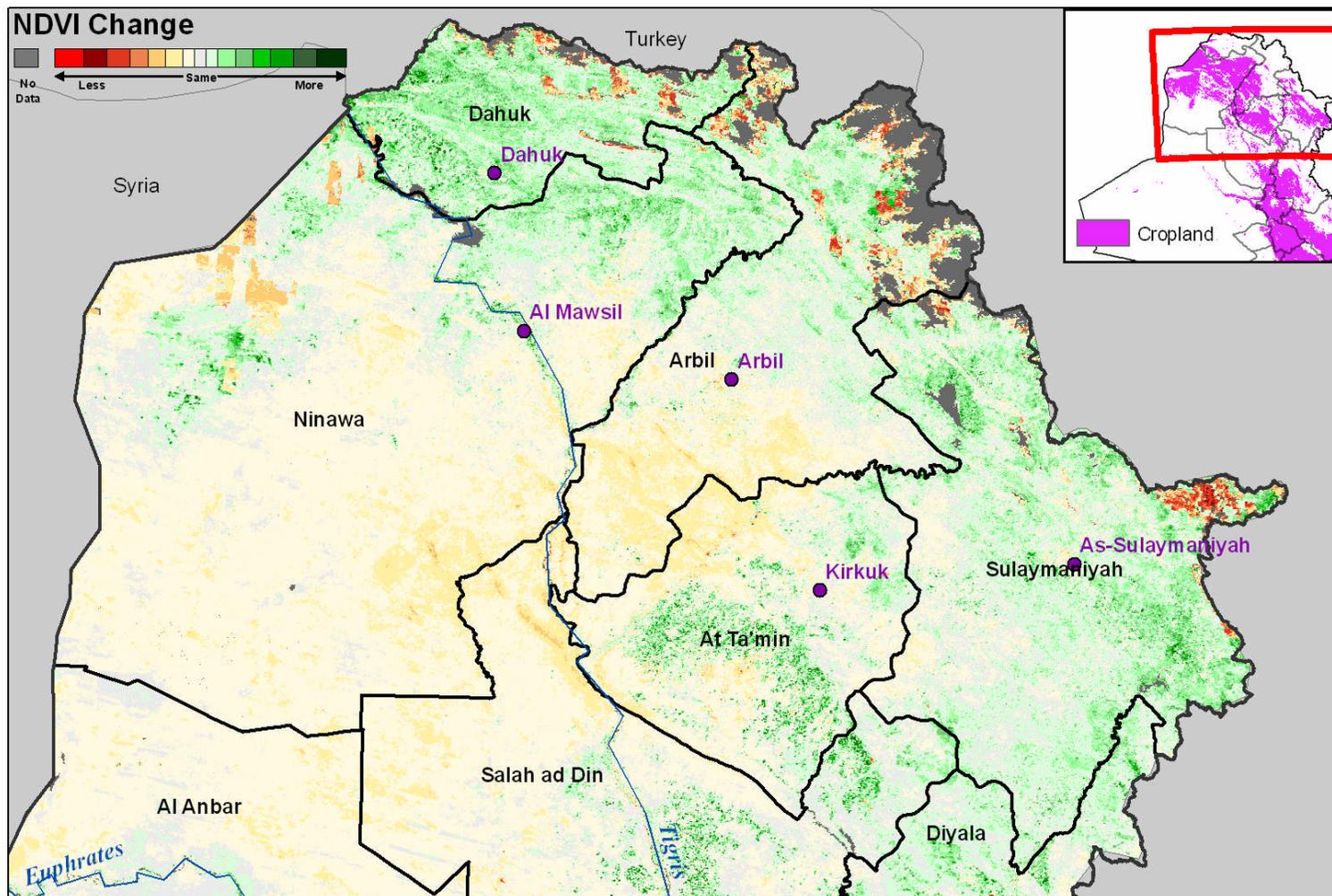


Figure 10. Change in MODIS NDVI: MY 2010/11 vs. 6-year average.

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MODIS NDVI Change in Northern Iraq: MY 2010/11 vs. 6 Year Mean



December 19 - January 3

Data Source: MODIS 16-Day NDVI
Data Provided by: University of Maryland
Supporting: USDA/FAS/OGA/IPAD



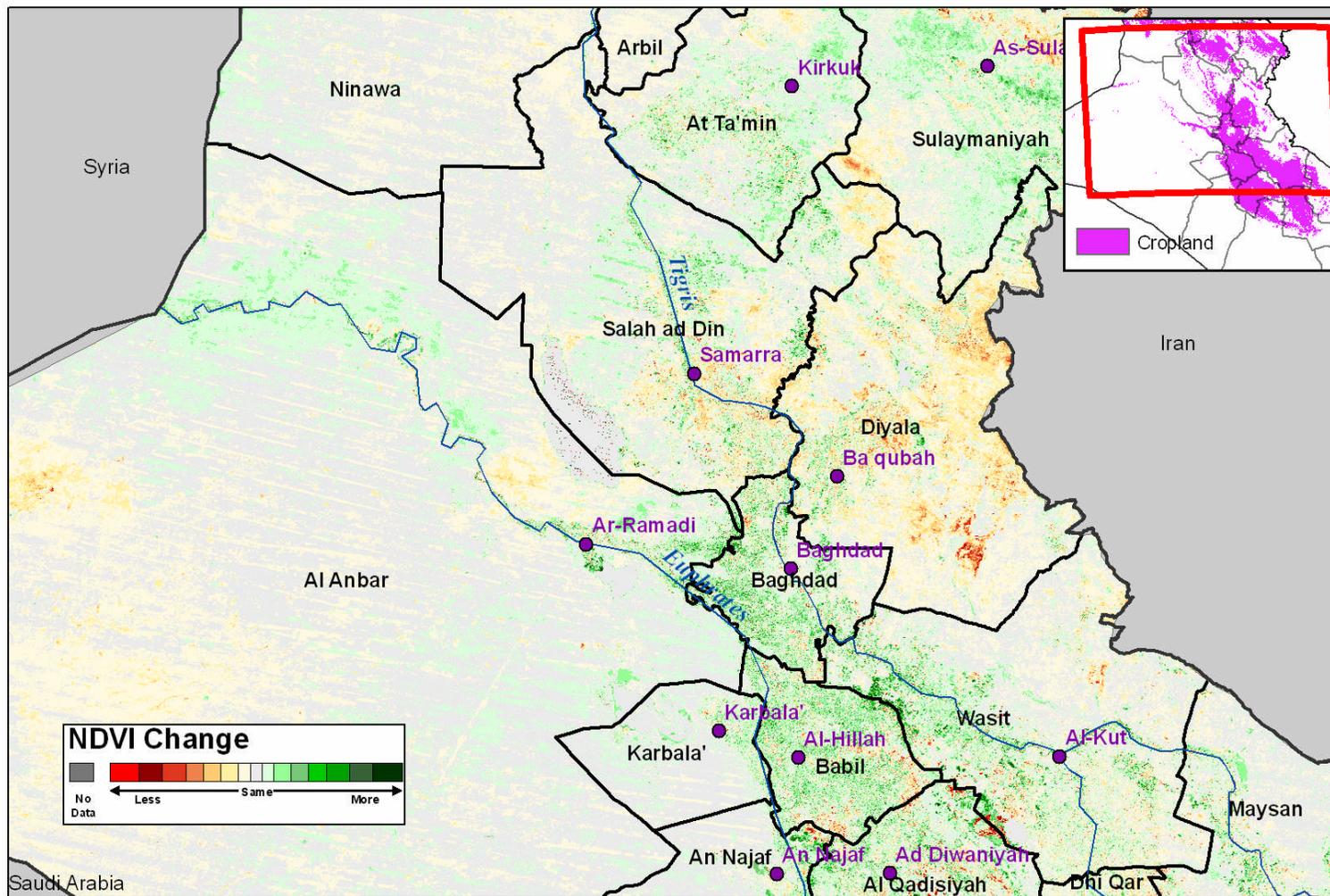
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Figure 11. Change in MODIS NDVI for northern Iraq: MY 2010/11 vs. vs. 6-year average.

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MODIS NDVI Change in Central Iraq: MY 2010/11 vs. MY 2009/10



December 19 - January 3

Data Source: MODIS 16-Day NDVI
Data Provided by: University of Maryland
Supporting: USDA/FAS/OGA/IPAD



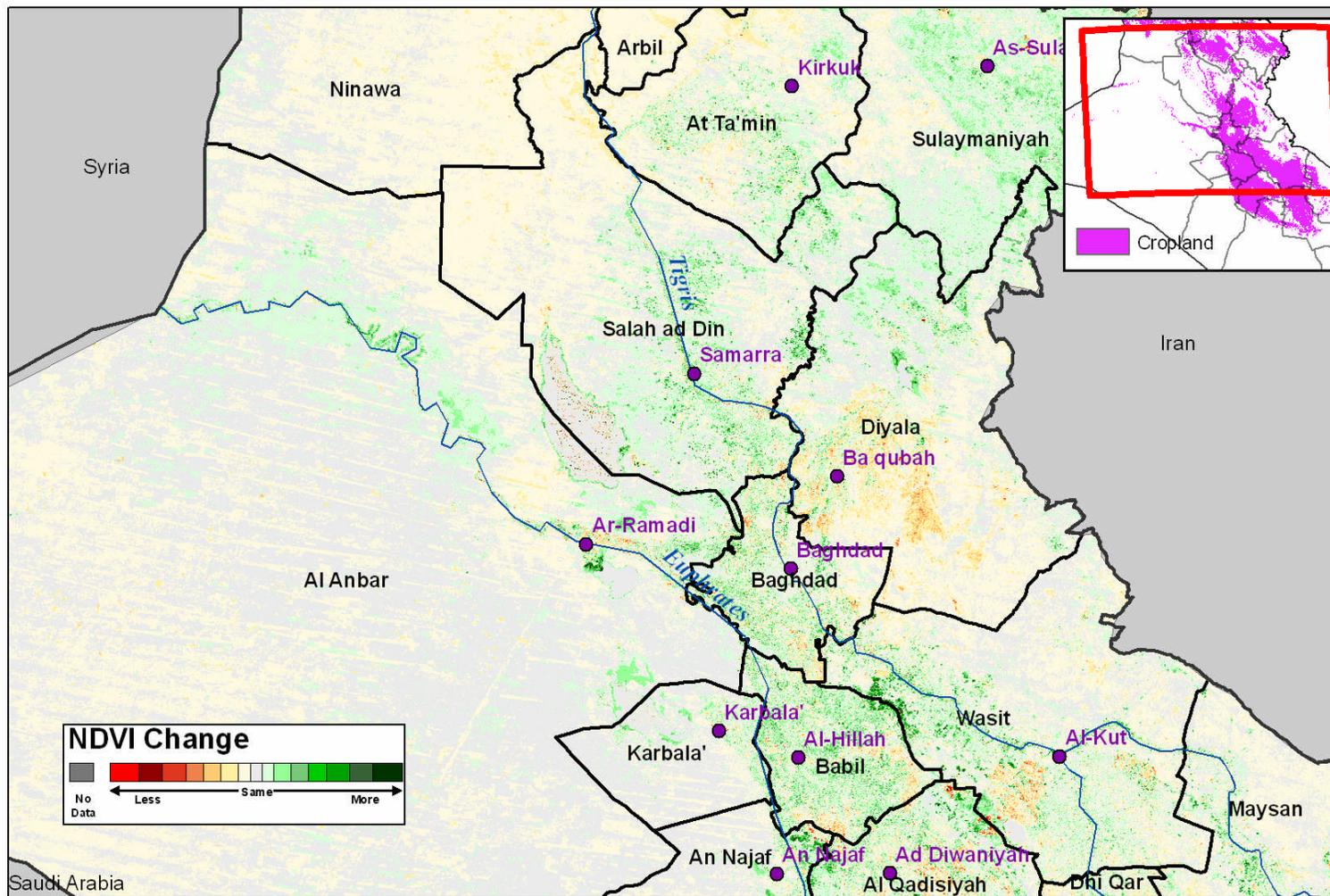
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Figure 12. Change in MODIS NDVI for central Iraq: MY 2010/11 vs. MY 2009/10 drought year.

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MODIS NDVI Change in Central Iraq: MY 2010/11 vs. 6 Year Mean



December 19 - January 3

Data Source: MODIS 16-Day NDVI
Data Provided by: University of Maryland
Supporting: USDA/FAS/OGA/IPAD



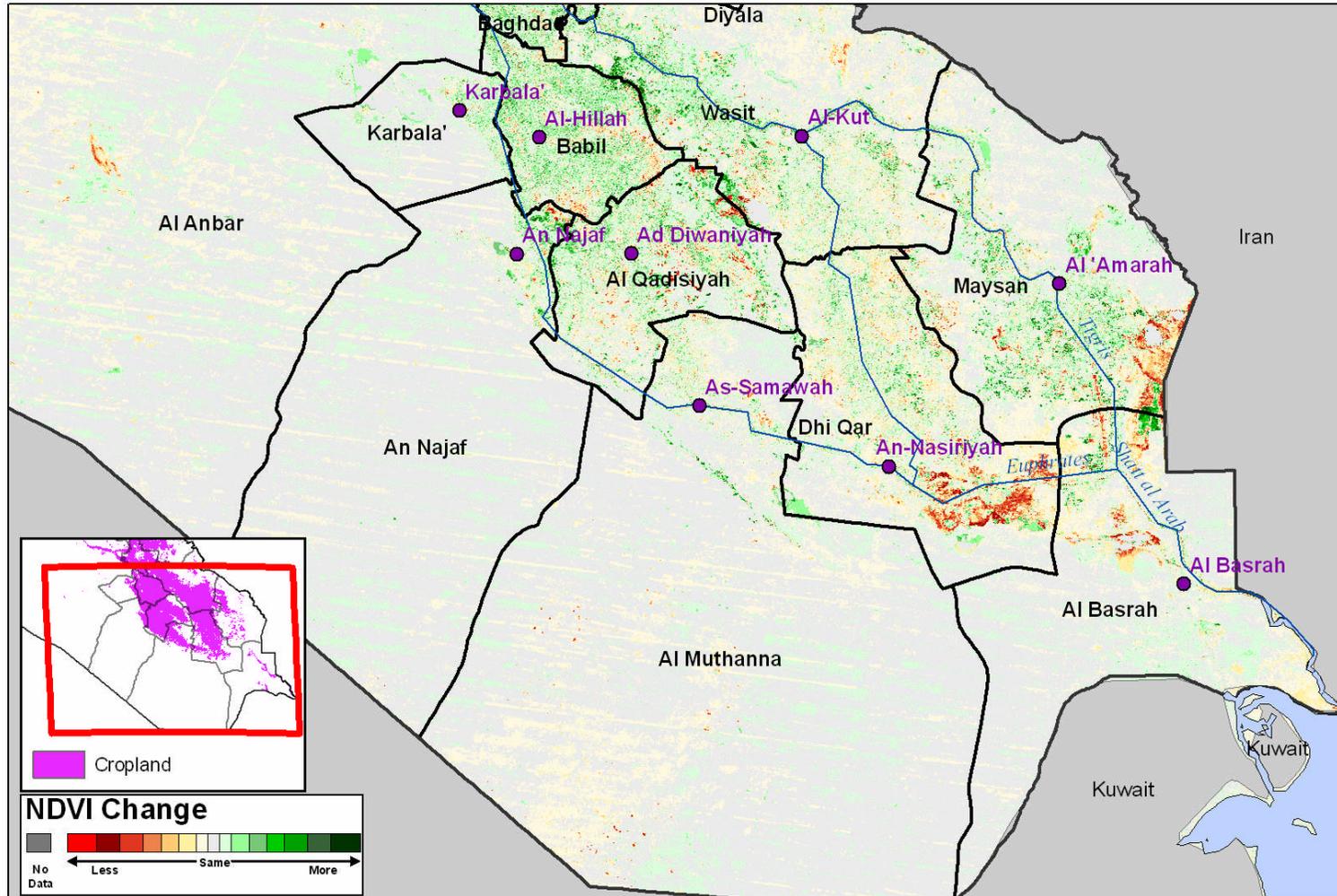
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Figure 13. Change in MODIS NDVI for central Iraq: MY 2010/11 vs. vs. 6-year average.

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MODIS NDVI Change in Southern Iraq: MY 2010/11 vs. MY 2009/10



December 19 - January 3

Data Source: MODIS 16-Day NDVI
Data Provided by: University of Maryland
Supporting: USDA/FAS/OGA/IPAD

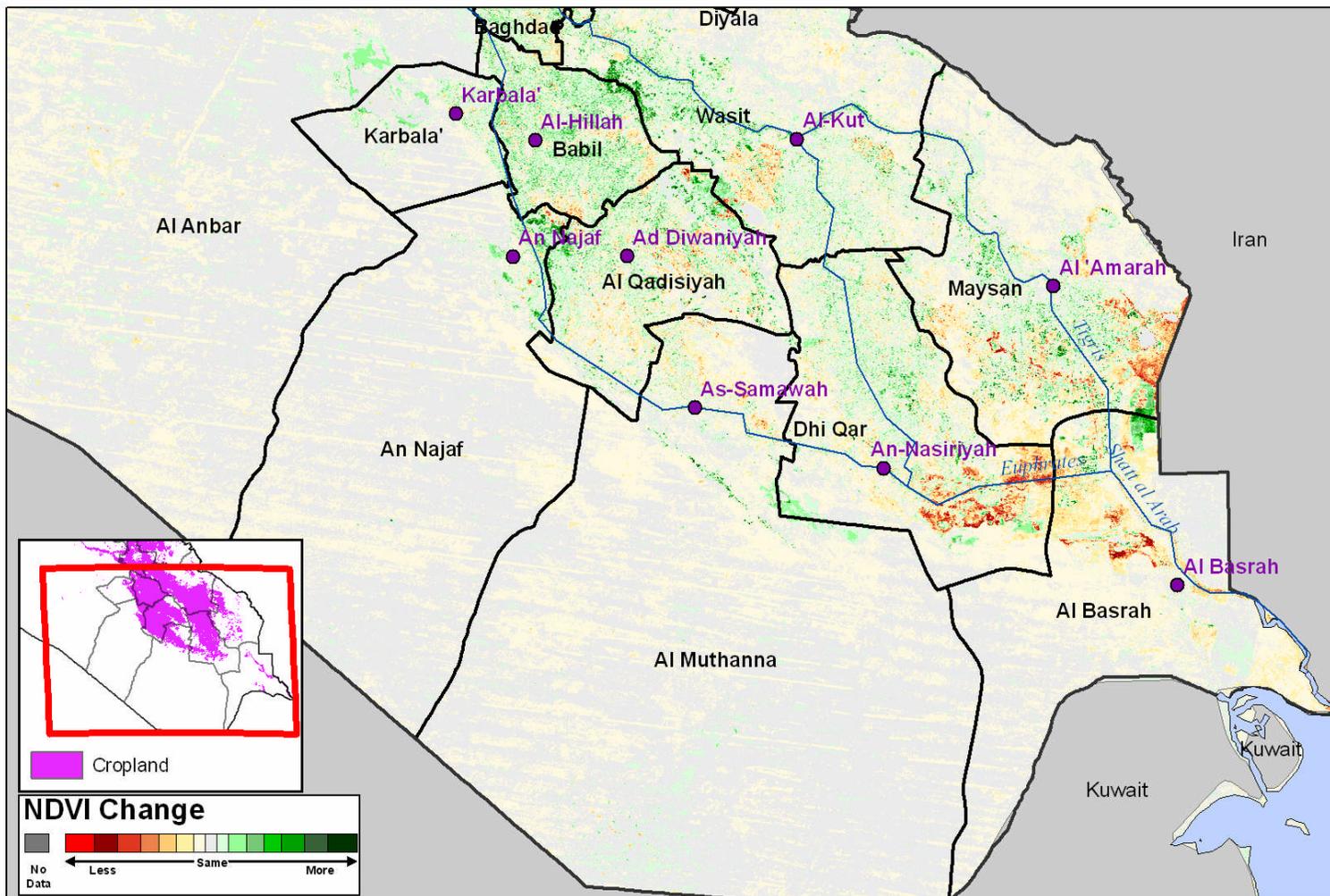


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Figure 14. Change in MODIS NDVI for southern Iraq: MY 2010/11 vs. MY 2009/10 drought year.

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MODIS NDVI Change in Southern Iraq: MY 2010/11 vs. 6 Year Mean



December 19 - January 3

Data Source: MODIS 16-Day NDVI
Data Provided by: University of Maryland
Supporting: USDA/FAS/OGA/IPAD



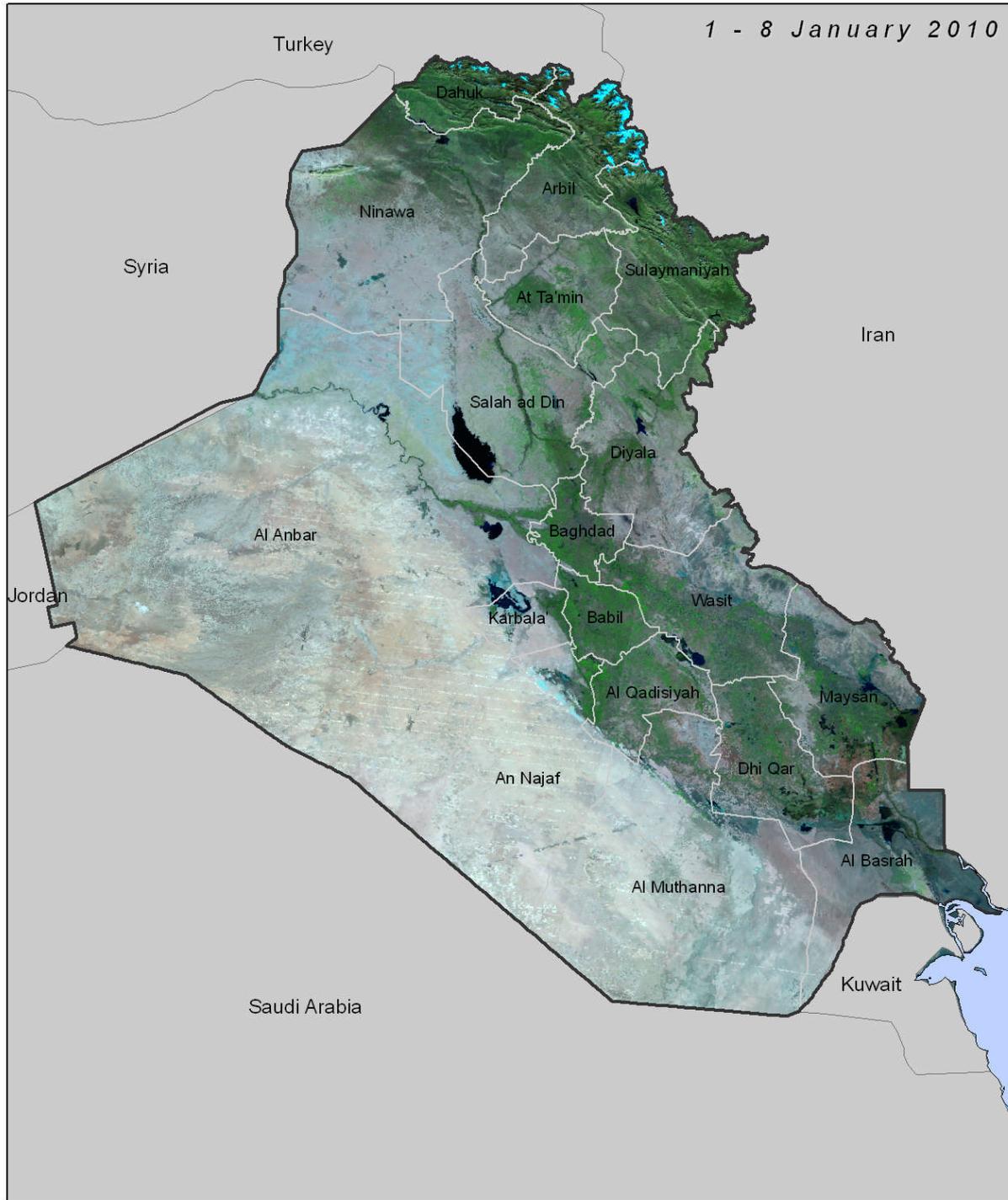
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Figure 15. Change in MODIS NDVI for southern Iraq: MY 2010/11 vs. vs. 6-year average.

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MODIS 721 False-Color Image

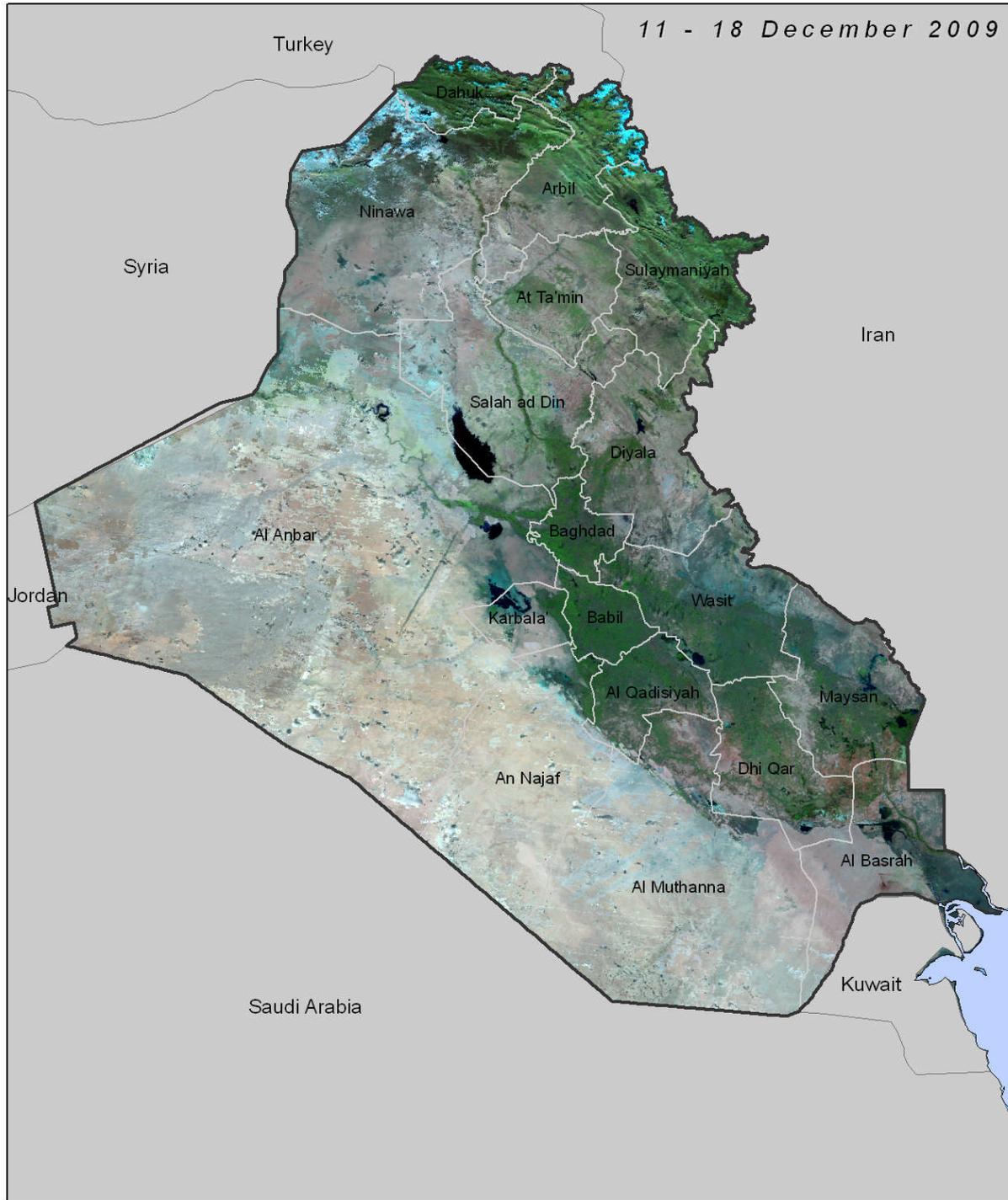


Data Source: MODIS 8-Day 621 Composite
Data Provided by USGS EROS Data Center/ NASA Goddard
Supporting: USDA/FAS/OGA/IPAD

Figure 16. Current month false-color MODIS bands 7, 2, 1 image.

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MODIS 721 False-Color Image

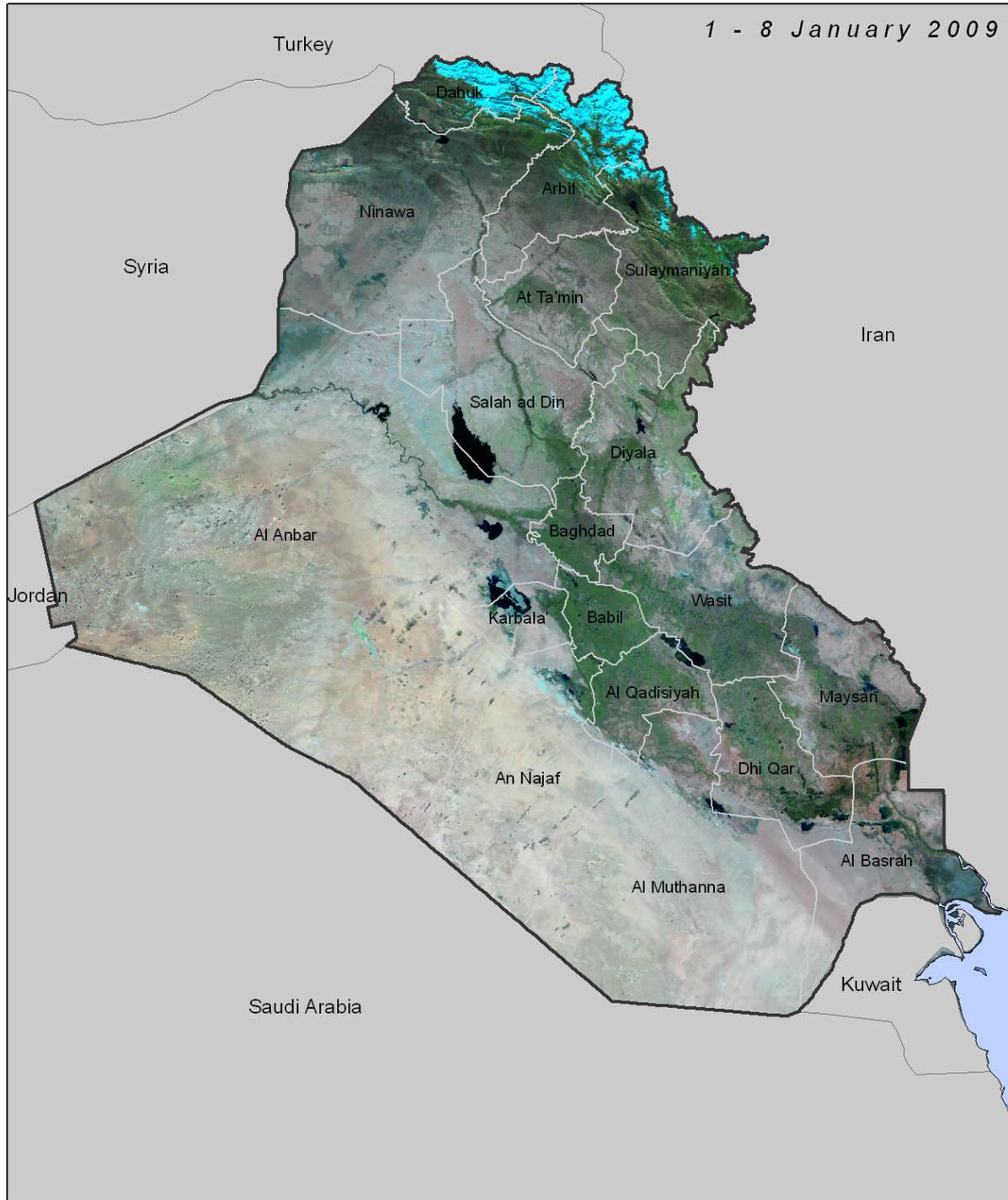


Data Source: MODIS 8-Day 621 Composite
Data Provided by USGS EROS Data Center/ NASA Goddard
Supporting: USDA/FAS/OGA/IPAD

Figure 17. Previous month false-color MODIS bands 7, 2, 1 image.

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MODIS 721 False-Color Image



Data Source: MODIS 8-Day 621 Composite
Data Provided by USGS EROS Data Center/ NASA Goddard
Supporting: USDA/FAS/OGA/IPAD

Figure 18. Previous year false-color MODIS bands 7, 2, 1 image.

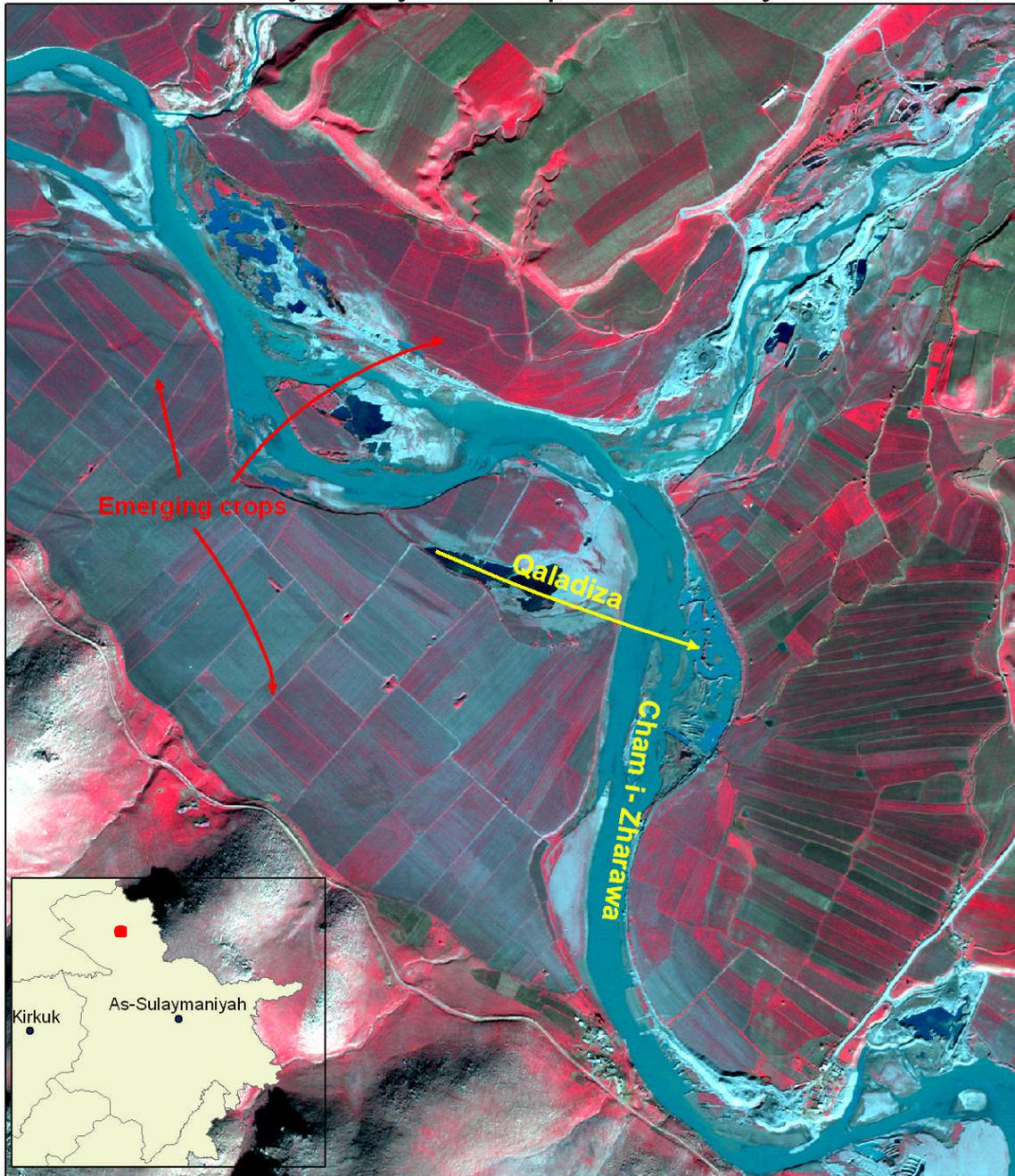
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Quickbird: Rainfed Grain Fields, Barapana,
As-Sulaymaniyah, Iraq, 10 January 2010



Figure 19. Quickbird image of irrigated crops near Barapana, As-Sulaymaniyah Province, Iraq. The small village of Barapana is to the west.

Quickbird: Irrigated Grain Fields Along Cham-i Zharawa,
As-Sulaymaniyah, Iraq, 10 January 2010



Data Source: Quickbird
Processing by ASRC Management Services for USDA/FAS/OGA/IPAD



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Figure 20. Quickbird image of irrigated crops near the Cham i-Zharawa stream, As-Sulaymaniyah Province, Iraq. The town of Qaladiza is to the east.

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Quickbird: Rainfed Grain Fields, Harir,
Arbil, Iraq, 22 January 2010

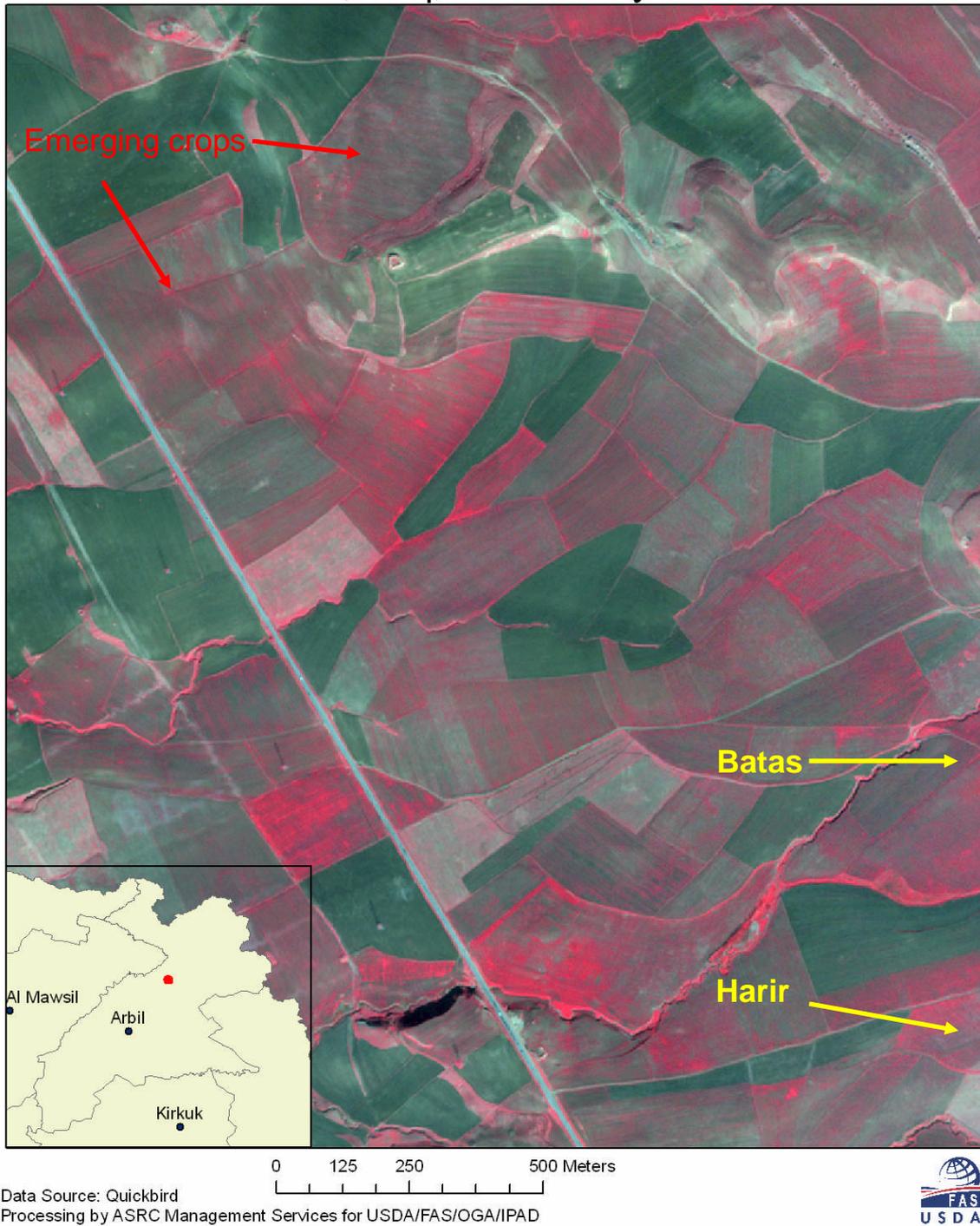


Figure 21. Quickbird image of rainfed crops west of the settlements of Harir and Batas, Arbil Province, Iraq.

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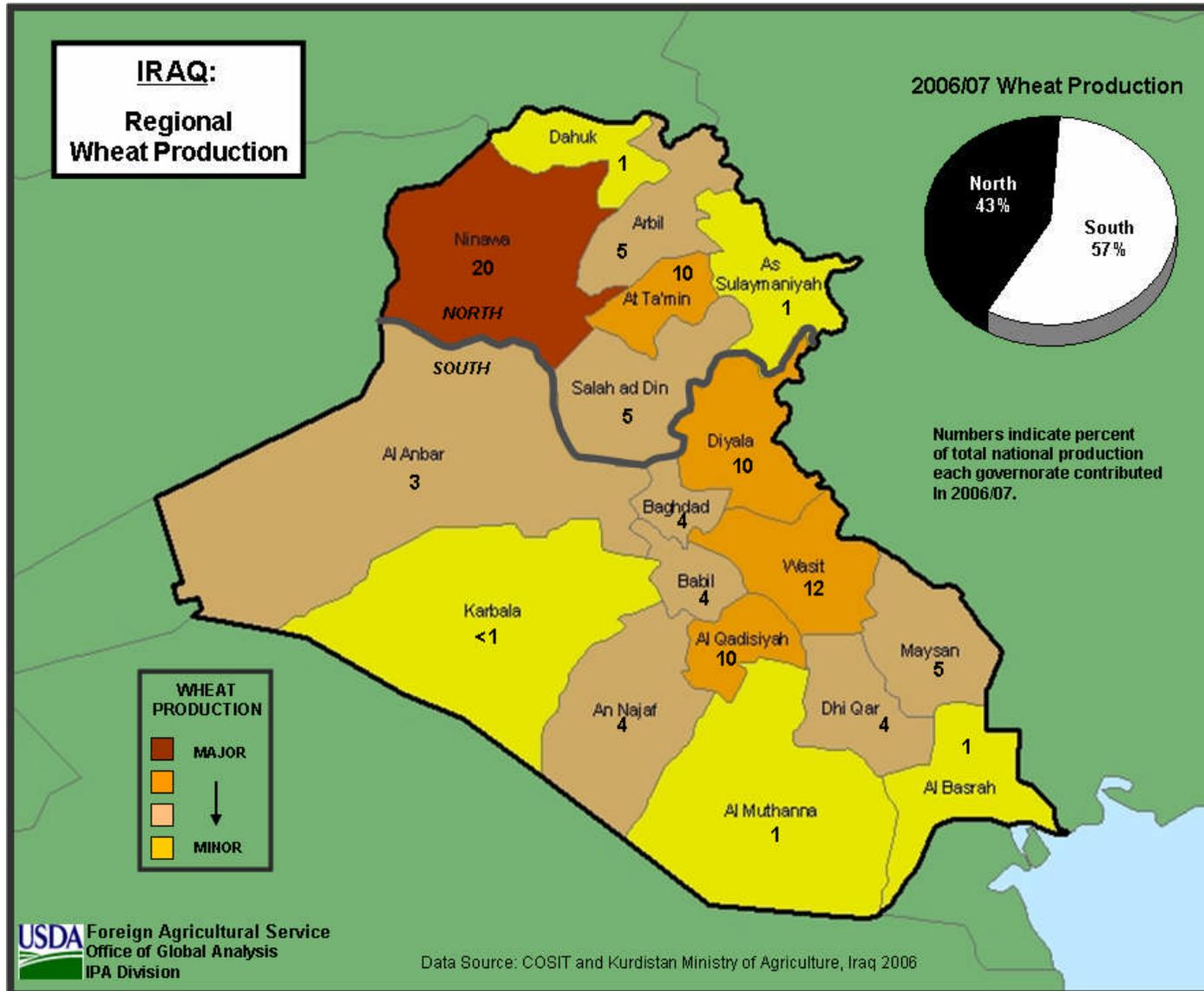
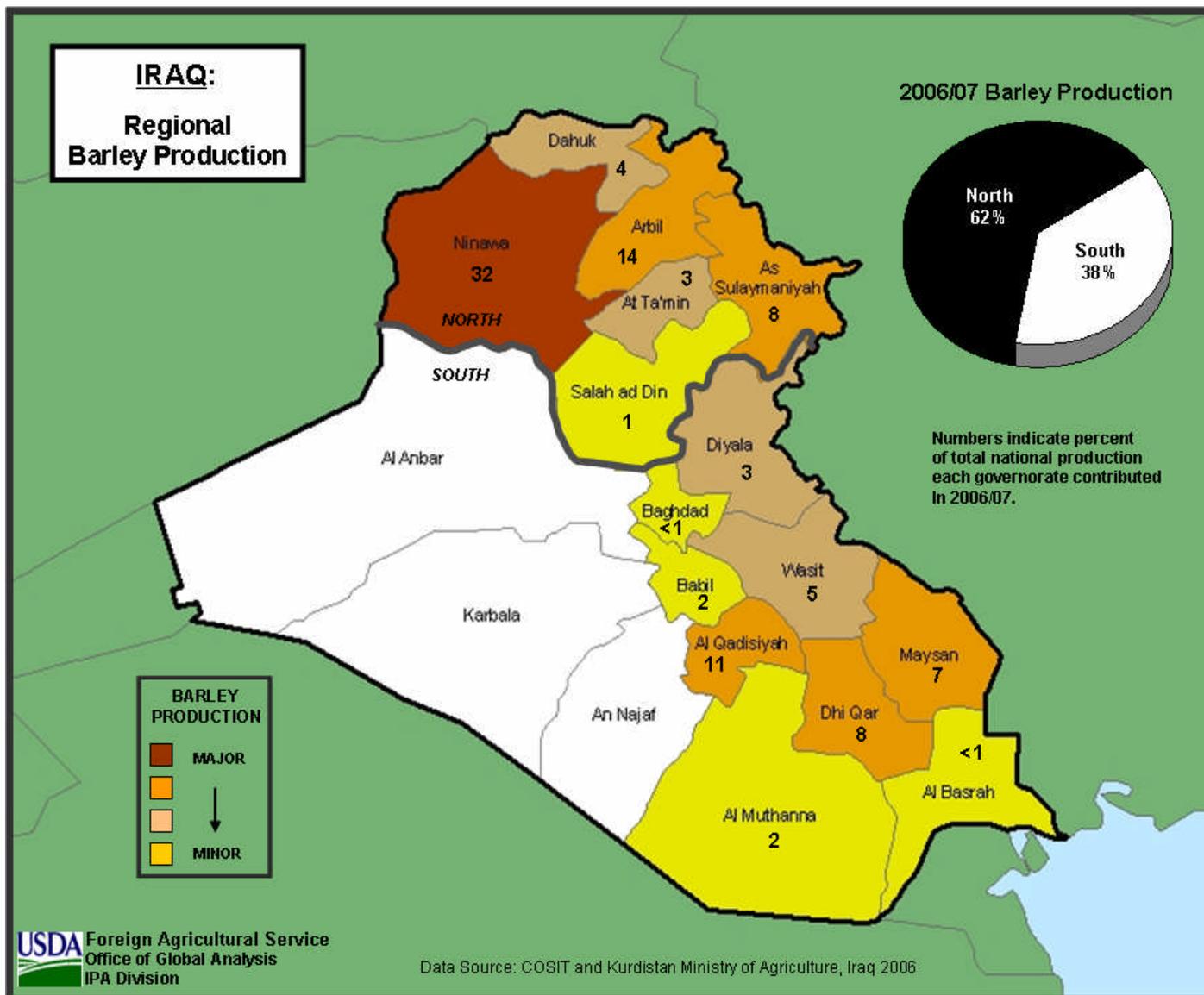


Figure A1. Percent of national wheat production broken down by agricultural region.

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Figure A2. Percent of national barley production broken down by agricultural region.

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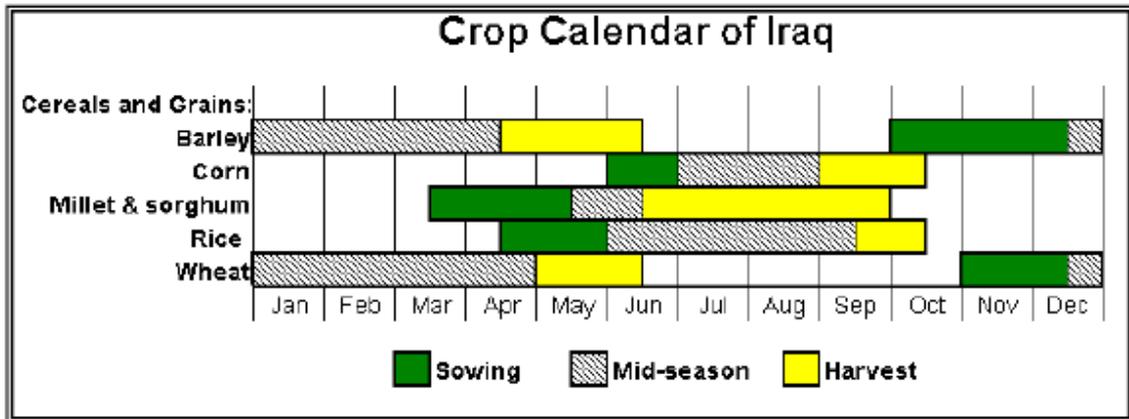


Figure A3. Crop calendar of Iraq.

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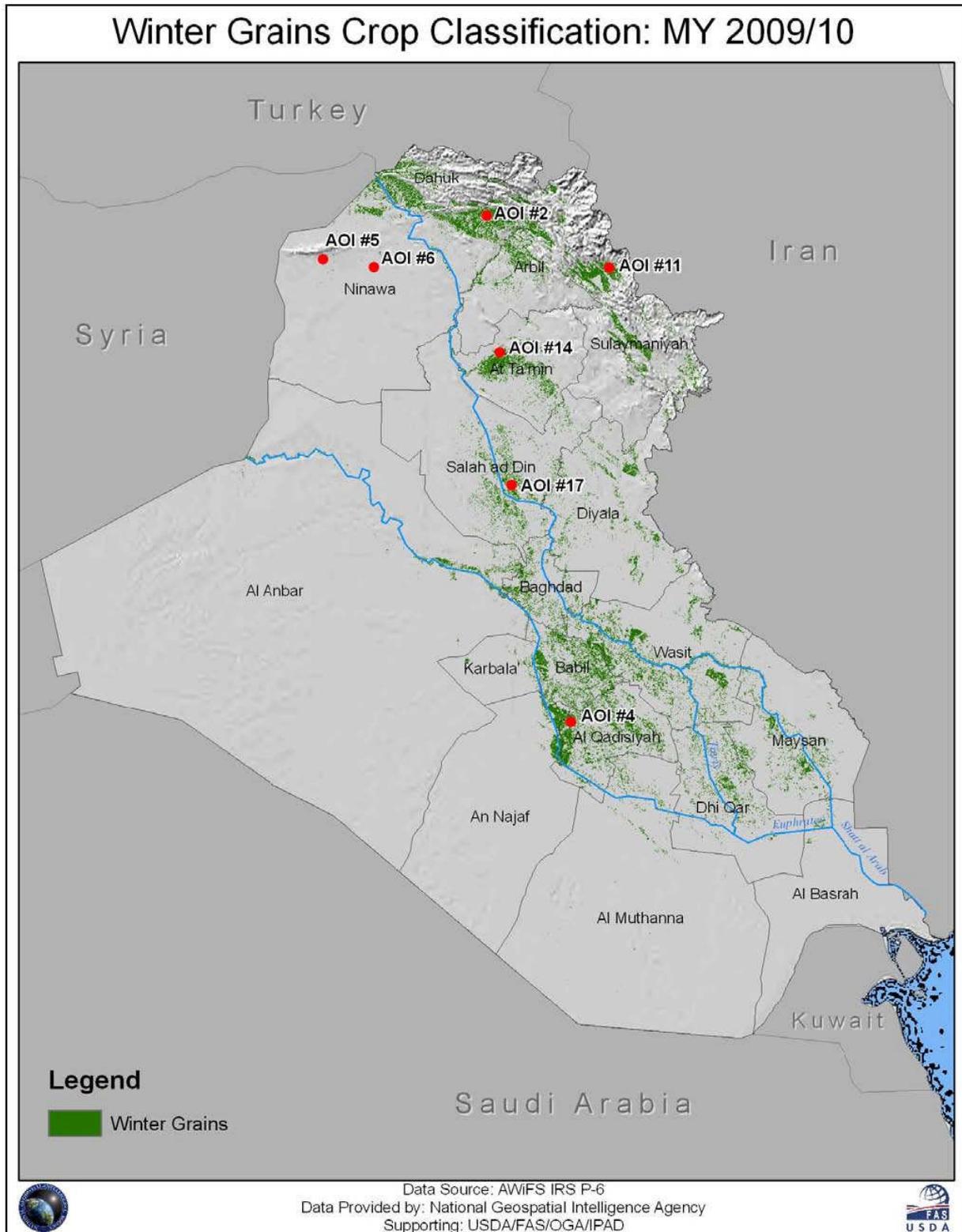
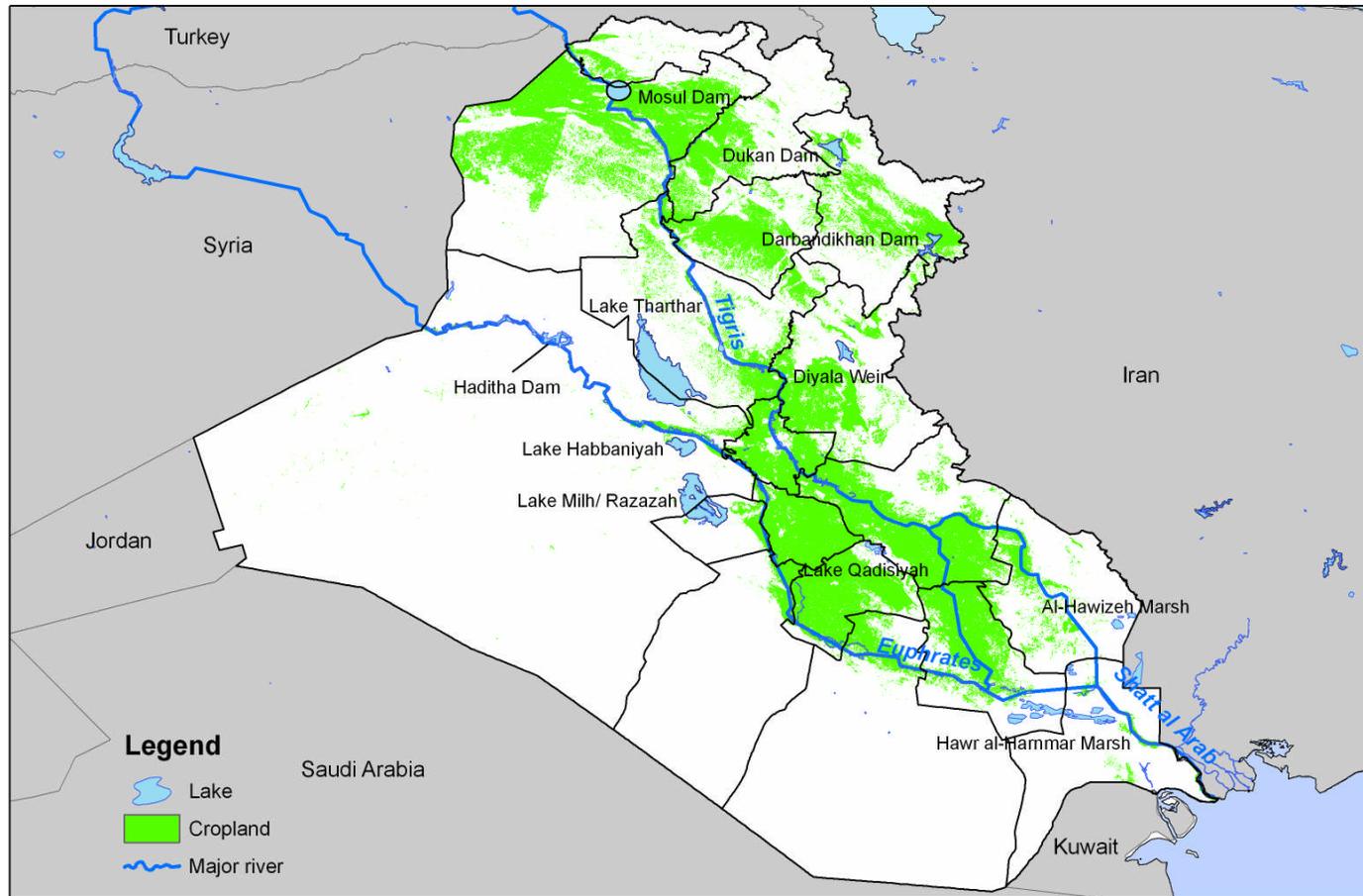


Figure A4. Winter grains map classified from AWiFS imagery. AOIs show locations of high resolution Quickbird imagery.

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Aboveground water resources in Iraq



Data analysis by USDA/FAS/OGA/IPAD and ASRC Management Services



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Figure A5. Major lakes and reservoirs in Iraq.

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