



Source: United Nations. 2020. Map of the world [online]. [Cited July 2022]

Libya is characterized by water scarcity. The land cover map is required to support crop and water productivity in Libya. Sampling design needs to be carried out to identify suitable locations for field surveys to collect data for land cover mapping. Stratification based on changes in vegetation and water productivity is carried out to identify the optimum number of sampling locations in Fezzan, Libya at the parcel level.

Using vegetation index (NDVI)

Using Evapotranspiration

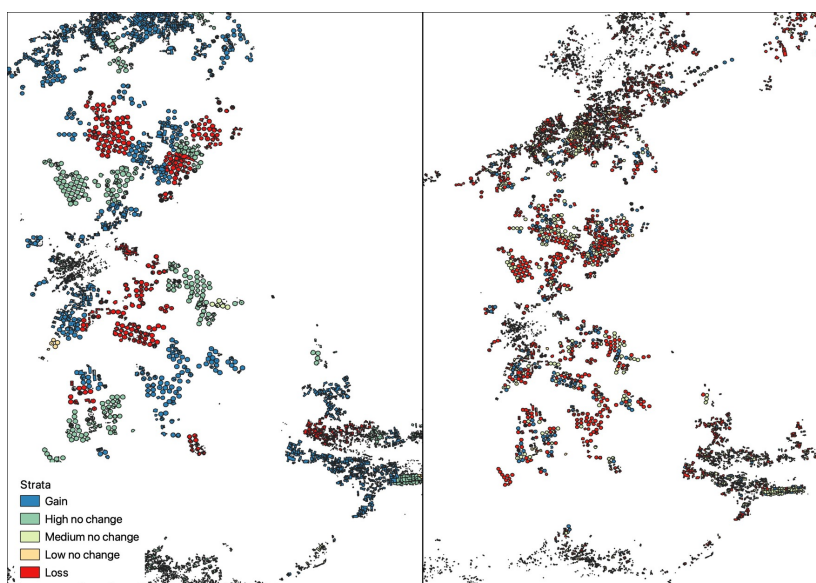


Figure 1: Spatial distribution of stratified classes

Land parcels is stratified into five classes Gain, High no change, Medium no change, Low no change and Loss based on remote sensing indicators. Crop productivity is analyzed using NDVI derived from Landsat 5 (2010) and Landsat 8 (2021) data, whereas water consumption is analyzed using actual Evapotranspiration and Interception (ETIa) of year 2010 and 2021, sourced from WaPOR data.

Table 1: Area statistics (ha) of stratification at district level in Fezzan, Libya¹

Districts	Total land area (ha)	Number of parcels	Cultivated land area (from segmentation and crop mask) of stratified classes					
			Parcel area (ha)	Gain	High no change	Medium no change	Low no change	Loss
Aljufra	11 601 364	6 149	9 950	1 865	4 345	2 559	830	349
Wadi Ashs hati	10 176 191	5 263	10 652	1 530	4 504	2 888	1 005	725
Sebha	1 721 922	10 055	64 097	40 302	11 944	723	1 295	11 780
Ubari	3 242 765	7 643	22 475	227	10 057	2 741	2 068	7 692
Murzuq	28 081 733	11 774	39 410	14 587	14 320	2 981	3 319	41 99
Ghat	5 083 983	56	178	0	0	78	100	0
Total	59 907 958	40 940	1 46 761	58 514	45 171	11 970	8 617	24 748

¹Prepared by Gautam Dadhich, Hesham Aboelsoud and Matieu Henry. Bashir Nwer, Faycel Chenini. Evaluation of irrigation, infrastructure crop mapping and estimation of agricultural water use (OSRO/LIB/100/AFB), Food and Agriculture Organization of United Nations, Rome, Italy.

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