TABLE I
CONFIGURATION OF SOME COMMON HYPERSPECTRAL IMAGING PLATFORMS [42]

Hyperspectral platforms		Operating spectral range (nm)	Spatial resolution (m)	Spectral resolution (nm)	Temporal resolution (days)	Operating distance (km)	Manufacturer
Close-range Imaging Platforms	American Society for Photogrammetry and Remote Sensing (ASPRS)	-	0.0001-0.01	-	Depends upon operation/flight time	<10 m	-
	All Seeing Eye OCI™	600-1000	0.10-0.5	3-15	Depends upon operation/flight time	-	BaySpec, Inc, USA
	SNAPSCAN	1100-1700	0.16-0.3	100 bands	Depends upon operation/flight time	-	imec, USA and the Netherlands
UAV based Imaging Platforms	Headwall	400-1000 (VNIR)	0.01-0.5	6nm-2.5μm	Depends upon operation/flight time	<0.15	Headwall, Photonics, USA
	UHD-185 Firefly	450-950	0.01-0.5	4	Depends upon operation/flight time	<0.15	Cubert, GmbH, Germany
Airplane-based Imaging Platforms	CASI	380-1500	1-20	<3.5	Depends upon operation/flight time	1-20	Itres, Canada
	AVIRIS	400-2500	36	17	-	-	Jet Propulsion Laboratory, USA
	Airborne Imaging Spectrometer for Applications (AISA)	400-970 (Eagle)	1-20	3.3	Depends upon operation/flight time	1-20	Specim, Finland
	Hyperspectral Mapper (HyMap)	440-2500	-	15	Depends upon operation/flight time	1-20	Integrated Spectronics, Australia
Satellite-based Imaging Platforms	Hyperion	357-2576	30	10	16-30	7.7	NASA, USA
	Project for On-Board Autonomy-Compact High Resolution Imaging Spectrometer (PROBA-CHRIS)	415-1050	17	34	8	14	ESA, UK
	HJ-1 A	0.43-0.90 um	100	5	2	360	China Academy of Space Technology, China
	PRecursore IperSpettrale della Missione Applicativa (PRISMA)	420-2450	30	12	<14	614	ASI, Italy
	ENMAP	420-2450	30	6.5	27	30	OHB System AG, Germany
	HyspIRI	380-2500	30-60	10	16	-	NASA, USA

of some common hyperspectral imaging platforms. Although close-range-based hyperspectral imaging platforms provide better precision agriculture analysis, some limitations must be mitigated. For instance, the enigmatic interaction between the target crops/plants, light sources, and nearby big trees (height) can affect the image acquisition process. In other words, the variation in illumination, the partial-shadowed or full-shadowed condition, can heavily influence the image quality and acquisition process [42], [43], [44], [45]. Based on the funding, time, and analysis requirements, researchers should choose the best platform to conduct the research in their respective fields.

b) UAV-based hyperspectral imaging: In recent years, UAVs emerged as one of the most popular hyperspectral imaging platforms for data acquisition. UAVs can obtain high-spatial-resolution images through helicopters, drones, and multirotors with fixed wings. The UAVs are mounted with lightweight hyperspectral sensors. Some lightweight sensors are UHD 185-Firefly [46], [47], HySpex VNIR [48], [49], PIKA II sensor [50], [51], and Headwall Micro- and Nano-Hyperspec VNIR [52], [53], [54]. Most of these sensors operate within the VNIR range. They are also very lightweight and smaller, which can be mounted on UAV platforms. Literature studies show that multisensors and fixed-wing planes are used for data acquisitions [47], [55], [56], [57], [58]. Usually, low-altitude and slow flights are performed to obtain the high-spatial-resolution hyperspectral imaging [42]. Regarding flight operation, multirotors are preferred over fixed-rotor planes as they are more flexible and can be operated at low-flight altitudes. For fixed wings, the process requires a minimum flight altitude, a particular speed, and a launcher such as a parachute. Generally, multirotors are