**INTRODUCTION**

The most significant seed legume in the world is the soybean (*Glycine max* (L.) Merrill), which produces 25% of the world's edible oil and almost two-thirds of the protein concentrate used in livestock feed. Soybean cultivation and consumption can be dated to the start of China's agrarian era. For generations, soybean has been associated with meat, milk, cheese, bread, and oil by the people of China, Japan, Korea, Manchuria, the Philippines, and Indonesia. This may be the cause of it earning the nicknames "Cow of the Field" or "Gold from Soil" in these nations. Soybean seeds have been used for many years to make a range of fresh, fermented, and dried food varieties in Asia and other regions of the world (Probst and Judd, 1973). The protein in soybeans is referred to as a complete protein because of its amino acid content. Its nutritional value for preventing diabetes and heart disease is widely recognised. The ''Big-3'' producers of the modern era are the United States, Brazil, and Argentina. Soybean was first introduced to India in the tenth century AD via the Himalayan routes and by Indonesian traders via Burma (now Myanmar). As a result, small-scale soybean farming has historically been practised in Himachal Pradesh, the Kumaon Hills of Uttar Pradesh (now Uttaranchal), eastern Bengal, the Khasi Hills, Manipur, the Naga Hills, and regions of central India that include Madhya Pradesh. Additionally, it has been reported that, after China, the Indian continent is where the crop was first domesticated. As it is a legume crop, soybean may use atmospheric nitrogen through biological nitrogen fixation, which reduces its demand on manmade nitrogen fertilisers. Given its numerous benefits, there is sufficient justification for its significant participation in important crop development programmes all over the world.

Soybean ranks first, among oilseed crops in the world and India. It is a predominant rainy season crop of the rainfed agroecosystem of India. The area planted with soybeans in India was 12.81 million ha in 2020-21 and production 12.90 million ton with average productivity of 1007kg/ha (Agricultural Statistics at a Glance 2021). Madhya Pradesh and Maharashtra account for 89 percent of all soybean output in India, with the rest of the production being produced in Rajasthan, Karnataka, Chhattisgarh, and Gujarat. In addition to other crops, Madhya Pradesh (The Soy State), which produces the majority of India's soybeans and occupies an area of about 58.54 lakh hectares, is renowned as the "bowl of soybeans"

After reaching physiological maturity, seeds enter a phase of degradation and start to lose their ability to germinate over time. Unfavourable weather during the pre-harvest post-maturation period might lead to mild to serious difficulties with seed quality. Herbicides are thus occasionally used on crops as harvest-aid treatments to speed up seed drying and encourage uniform seed maturity at harvest.

In order to achieve optimal yield, high quality seed is essential for maximizing seed germination and seedling vigour (Hussaini, 2014). In tropical and subtropical areas, a number of factors, including the sowing and harvesting phases, can have adverse effects on soybean seed production and quality. As stated by Kumar *et al*. (2012) the maturity stage of crops has a significant impact on seed yield and quality. Therefore, it is crucial to harvest seeds at the ideal stage of maturation because doing so early on or too late results in poorer yields and lower-quality seeds.

The natural pattern is for soybean prices to rise when there is a shortage on the market. As a result, some farmers use herbicides to accelerate the maturity and desiccation of the soybean crop without paying attention to the seed production and quality. There are different findings about the impact of desiccation on soybean seed production when it comes to the indication of chemical desiccation. When desiccants are applied before the physiological maturity, the yield of soybeans can be decreased (Lamego *et al*. 2013). Desiccation is advised to occur after stage R8 in cultivars with unpredictable growth habits because the pods continue to develop even after reaching physiological maturity (Zagonel,2005). Accordingly, a study was conducted to ascertain the yield and quality of soybean seeds harvested after employing herbicides as a desiccant in terms of size and weight.

The harvest date has a big impact on soybean production and seed quality because of variances in maturity. It is more important than ever to identify or test for the appropriate maturity stage for producing high-quality seeds. To improve and guarantee the quality and viability of soybean seed, it is essential to ascertain the proper maturation stage period.

Keeping above facts in view, the present investigation has been proposed with the following objectives:

1.To study the effect of herbicides on seed quality.

2.To study the effect of herbicides at crop maturity stage.