Phalaris paradoxa L. (Poaceae family) - hood canarygrass - is an annual grass infesting winter cereals in central and southern Italy. This study investigated the resistance status of seven Italian populations of P. paradoxa collected from fields where an inadequate level of control was observed following an extensive history of ACCase applications. The aims were also to determine the efficacy of alternative herbicides and investigate the molecular basis of one highly resistant population. Two outdoor pot dose-response experiments were done to collect information on patterns and levels of cross-resistance. Seven-eight herbicide doses (plus an untreated check) were used for each of the following herbicides: clodinafop-propargyl (240 g/L), diclofop-methyl (284 g/L), fenoxaprop (55 g/L), sethoxydim 20% (185 g/L), tralkoxydim 22.5% (250 g/L), pinoxaden (100 g/L), chlorsulfuron (75 g/L), iodosulfuron (50 g/Kg), imazamethabenz (300 g/L) and isoproturon (500 g/L). Each experiment had three replicates with three pots per replicate containing 6 plants each and also included a susceptible population. The experimental design was completely randomised. Biomass and plant survival data were collected 18-21 days after herbicides application. The mean survival and fresh weight for each treatment were expressed as a percentage of the untreated control treatments. The ED$_{50}$, GR$_{50}$, for the mean percentage survival and fresh weight respectively, were calculated using non linear regression analysis. Statistical analysis was conducted using an EXCEL®VBA macro based on a log-logistic equation to fit the data. Resistance indexes (R.I.) were calculated from ED$_{50}$ and GR$_{50}$ values (GR$_{50}$R/GR$_{50}$S, ED$_{50}$R/ED$_{50}$S). Two populations showed a low level of resistance to diclofop (fresh weight R.I. of 2.5 and 3.4), while only one population displayed a wide pattern of cross-resistance to ACCase herbicides, including sethoxydim (R.I. 40.5) and pinoxaden (R.I. 15.1). This suggested that the resistance mechanism is target site mediated. Genomic PCR amplification and direct sequencing of the carboxyl transferase domain of the ACCase gene pinpointed the presence of an Ile$_{1781}$ to Val$_{1781}$ and Asp$_{2078}$ to Gly$_{2078}$ substitutions in the P. paradoxa chloroplastic ACCase of the resistant population. The last mutation have already been shown to confer resistance to ACCase inhibitors in other grass weeds, but these results document the first case of an ACCase-resistant population of P. paradoxa in Europe. The substitution Ile$_{1781}$ to Val$_{1781}$ has never been reported before while Ile$_{1781}$ to Leu$_{1781}$ has already been reported in several species Non-ACCCase-inhibiting herbicides with mode of action belonging to the PSII (isoproturon) and ALS inhibitors (iodosulfuron, chlorsulfuron, imazamethabenz) adequately controlled all the tested P. paradoxa populations.